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**PERCEIVED LIKELIHOOD OF
ACTIVITY-BASED COSTING TO SUCCEED
IN
A UNIVERSITY SETTING**

By Nazmi Sae'b Jarrar

**A thesis submitted in partial fulfilment of requirements for the award
of Master of Business by Research (Accounting)**

**at the Faculty of Business
Edith Cowan University**

Date of Submission: 31 Aug. 2004

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I would also like to dedicate this work to my father Sae'b, and mother Rabiha for their always blessing, guidance and support.

ABSTRACT

The study provides exploratory empirical evidence on the likelihood of Activity Based Costing (ABC) to succeed in a university setting and the association of this success with specific behavioral implementation factors. The study examined perceptions of Edith Cowan University's ABC users and preparers of the likelihood of the system to succeed in the University and their perceptions of eleven behavioral implementation factors identified by previous studies to have significant association with ABC implementation success. Results were analyzed so as to determine the significance of the correlation between the users' and preparers' perceptions of each of the eleven factors and their perception of the likelihood of ABC implementation to succeed in ECU. Results were then analyzed independently for the user group as well as for the preparer group to test the ability of the study model to explain the ABC success likelihood from each group's perspective. Results also were analyzed to detect differences, if found, between users and preparers in their perceptions of the ABC success likelihood as well as their perceptions of each of the eleven implementation factors.

The study has four primary results. First, results indicate the existence of significant positive correlations between the study participants' perceptions of the likelihood of ABC success and their perceptions of top management involvement and support to the implementation project, the linkage of the ABC system with the University's competitive strategies and continuous improvement programs, the training provided to employees at all levels concerning designing, implementing and using the ABC system, the likelihood to take ABC ownership by non-accountants as well as by accountants, and the existence of an organizational culture within the University that allows the embracement of the ABC change. Second, the study confirmed that the study's eleven behavioural factors altogether explains significantly the users' perceptions of the likelihood of ABC to succeed in the University. Third, the theoretical framework predicting the effect of the study's eleven implementation behavioural variables on the likelihood of ABC to succeed fails to explain significantly preparers' perceptions of the

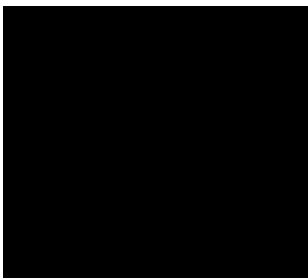
likelihood of ABC to succeed in the University. From a users' perspective, the study provided evidence that the study's theoretical framework explains significantly the likelihood of ABC to succeed. Fourth, the results indicate that perceptions of ABC implementation may vary depending on the role of participants in the system implementation process; the study results indicate the existence of significant differences between users and preparers in the perceptions of each group of the likelihood of ABC to succeed in the University and the existence of significant differences between the two groups in their perceptions of most of the study's behavioral implementation factors. The study, finally, provides several suggestions for future research.

The study is expected to benefit recent and future ABC implementers by directing their attention to the system's characteristics that have been proved to have significant correlations with the system's perceived likelihood of success. The study is also expected, by extending previous theoretical models, to advance the developed theory supporting the association of ABC certain characteristics and the system implementation success.

DECLARATION

I certify that this thesis does not incorporate, without acknowledgement, any material previously submitted for a degree or diploma in any institution of higher education and that, to the best of my knowledge and belief, it does not contain any material previously published or written by another person except where due reference is made in the text.

Signature



Date..... 7 . feb . 2005

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CHAPTER 1: INTRODUCTION

1.0 Background of the study

The last two decades have witnessed a growing interest among firms in adopting Activity-Based Costing (ABC) systems as cost allocation system (Shields, 1995). Organizations are more complex today than they were in the past and there is a growing need for a better cost management. Managements of today need more relevant, accurate and readily available cost information to help in forming strategies and making decisions in relation to production structure and production cost. Organizations can increase their profits by adopting the costing system that generates more useful cost information to enable making right decisions based on that information. Accurate costing information is needed for product profitability analysis. It helps management to know which products are profitable, which products to emphasize, trends of product profitability over time, and product costs as a basis for price setting. Traditional cost systems have been perceived as far from the realistic situation in regarding to the allocations of operating costs to various cost objectives. Therefore, questions have been raised as to what allocation system is to be adopted so that operating costs can be fairly allocated to the various cost objectives. The awareness of ABC system and the benefits associated with its implementation makes it a promising alternative system. ABC systems are sophisticated enough to measure the different levels of resources required to produce different products (Sohal and Chung, 1998; Rahl and Hartman 1998).

ABC helps the organization to gain an understanding of the cost structures of its products and services from a process perspective (Landry, Wood and Lindquist, 1997). Understanding how the total cost affects the costs of products and services leads to a potential improvement to cost estimation (Sohal and Chung, 1998) and to the awareness of the competitive nature of the organization's business (Edds and Nielsen, 2000). Both preparers and users of ABC have found that the information results from the

implementation of ABC systems is more accurate, reliable, timely and understandable than the information produced by other costing systems (McGowan, 1998). ABC provides more accurate cost information and product line costing even where non-volume overheads are significant and diverse product lines are in place. ABC provides reliable indications of the long-run variable product cost that is of a particular relevance to the managerial strategic decision-making. ABC also provides meaningful and understandable financial and non-financial measures that provide a more logical, acceptable and comprehensive basis for costing work (Sohal and Chung, 1998). With such quality information, ABC helps the organization to ascertain the real value of its products or services (Landry *et al.*, 1997). This can be used in helping the organization to outsource inefficiently produced products or services (Greenson and Kokakulah, 1997; Sohal and Chung, 1998). Quality information helps also in identification of appropriate benchmarks, which can be used against imported competitive products; it leads to more appropriate investment decisions, and it helps in validation of annual budgets for specific expenses (Sohal and Chung, 1998). Further, ABC system is flexible enough to analyse cost-by-cost objectives other than products such as processes, customers, and areas of managerial responsibility (Sohal and Chung, 1998). ABC is not expected to have an immediate major cultural effect on the organization. The culture of the organization could not be changed within few months because of the implementations of the ABC project. ABC implementation, however, helps the seeds for significant effects and cultural change to sprout and develop roots (Edds and Nielsen, 2000).

Much like the case in any other economic sector, escalating costs, diminishing resources, increased competition, unhappy customers and state legislators demanding accountability are all pressures experienced by the educational sector to manage better their costs (Tatikonda and Tatikonda, 2001). The role of management accounting in universities has become more important in recent years. There is a need for effective cost accounting systems to assure informed decisions and better allocation of resources (Goddard and Qoi, 1998). As financial constraints for universities have become tighter, there is now a need to demonstrate cost recovery and profit or loss on all courses in order to better manage public funds. The need now is for more commercial reality to be used for their decision-making. More accurate information is needed to analyse the reasons for losses and the action required to minimize these losses (Cropper and Cook,

2000). Despite all the mentioned pressures, the costing systems within higher education institutions have achieved so far only limited success in accurately allocating overhead expenses. The existing cost accounting within universities cannot be used to justify the selling prices. The need now is for a system that includes more accurate information for forecasting, performance measurement and decision-making (Cropper and Cook, 2000). According to Cropper and Cook (2000), survey results indicate that the number of educational institutions who are not satisfied with their costing system and are looking to alter them in some way is increasing. For this reason, the interest and consideration of ABC within educational institutions is increasing.

In regard to overhead cost allocation in universities, ABC system can result in a significant difference in overhead cost allocations from other less sophisticated systems. The accurate cost allocation ABC provides creates an incentive not to over consume some services that could be priced under the existing costing system as almost free. ABC then provides more equitable overhead allocation as it insures that each faculty is charged for its actual consumption of central resources. In fact, ABC is not just an overhead cost allocation method. It improves the connection of the overhead cost allocations with the actual usage of services so that it improves the efficiency of these allocations (Goddard and Ooi, 1998). Therefore, the benefit of ABC innovation to universities is not just the cost allocation information the system provides. It is rather the initiation of cost-awareness in universities (Mitchell, 1996). ABC has also many other benefits it might provide to academic institution. It provides better information of the “true” cost of different programs. Using ABC can help institutions to better identify the resource needs of each area. It helps in achieving better distribution of scarce resources. It also helps universities to decide which course or programs to emphasize and which to eliminate. ABC also helps universities in achieving better control over its costs. Further, ABC provides an explanation of how performance of personnel has been assessed by providing a reasonably reliable and valuable tool to capture and report how resources have been used (Tatikonda and Tatikonda, 2001).

Despite all the appealing benefits of ABC to universities, and the increasing interest in ABC within universities, only few universities have introduced a comprehensive ABC system to date (Cropper and Cook, 2000). The identification of other priorities other than ABC by some universities; shortage of resources; the difficulty in getting staff to

understand the ABC methods, accept them and cooperate to implement the system; difficulty in carrying out the activity analysis especially staff time analysis; viewing ABC methods by some universities as unnecessary especially when the university has not experienced any kind of pressure to implement ABC; viewing the system by some universities as just another arbitrary cost allocation method and of no tangible benefits; difficulties in getting senior staff commitment; and the reluctance of some universities to move from the cost system they already use are some of the suggested explanations that explain the decline of many universities to consider ABC (Mitchell, 1996; Cropper and Cook, 2000). Rejection has been attributed to mostly behavioural reasons and not technical reasons. Technical defects and the inability to be used in decision making has never been the reason for the universities rejection of ABC (Cropper and Cook, 2000).

In 2004, Edith Cowan University (ECU) in Western Australia is undertaking a project to implement the Activity Based Costing model. According to AGILITY Consulting (2004), ECU has understood the financial and strategic challenges that encounter the education sector in general and universities in particular and those challenges that will arise over the near future. AGILITY Consulting argued that ECU has, therefore, realised the need for a costing information system to provide the university with information for the purposes of strategic analysis, unit pricing and predictive costing. A scoping study was conducted to investigate the possibility to implement a unit/course costing system in ECU. As a part of that study, the high priority costing information requirements of the university's business was investigated and addressed. Unit costing and the impacts on financial performance; resource allocation and funding justification; predictive costing and pricing; unit breakeven analysis; and costs associated with international students and units were requirements identified as key and immediate priority requirements. ECU aims, by the use of ABC, to satisfy these requirements and therefore to maintain its leading position in the university market. ABC helps the university to develop a rigorous costing approach to unit and course costing and faculty based financial analysis useful to strategic and tactical decision making. ABC is highly relevant to ECU's objective of strengthening enterprise and the resource base. This objective is one of five strategic objectives of the new ECU strategic plan for 2003-2007. This five year strategic plan has been undertaken to take into consideration the Commonwealth Government's broad ranging reviews of higher education. ECU aims

by undertaking the new five year plan to be the state's leading university for the service professions (AGILITY Consulting, 2004).

The ECU ABC project objectives include the development of a costing model that will allocate the cost and revenue across all the university's business units and locations. The project aims to align (where possible) the ABC model with the existing university systems and to offer the university a solution that is capable of being updated for the changes to the outputs delivered and for the changes to the organization's structure and process. Costing outputs developed are aimed to provide clear and flexible information to be used in strategic issues analysis. The project objectives also include that the ABC outputs is to be on time and within budget. To keep the ABC model simple is a guiding principle for the implementation project as been set by the Steering Committee members (AGILITY Consulting, 2004).

The research aims specifically to examine in a university setting (ECU) the significance of the correlation between certain factors and the likelihood of the ABC implementation project to succeed. Through the investigation of the perceptions of users and preparers of the ABC system in ECU, this research explores the correlation of certain ABC behavioural implementation characteristic factors with the likelihood to implement ABC successfully in universities.

The theoretical framework of this research has been developed to examine in ECU the correlation between the preparers' and users' perception of the likelihood of the ABC implementation success (dependant factor) with their perceptions of implementation variables describing behavioural characteristics of the ABC system (independent factors). The independent variables are factors have been identified by previous literature as factors associated with the ABC implementation success (Shields, 1995; Shanahan, 1995; Thorne and Guard, 1995; Shields and McEwen, 1996; Roberts and Silvester, 1996; Krumweide, 1997; Young, 1997; Sohal and Chung, 1998; Krumweide, 1998; Anderson, Hesford, and Young 2002; Norris 2002). These factors are top management involvement and support, linkage to competitive strategies and continuous improvement programs, linkage to performance evaluation and compensation, training, ownership by non-accountants, adequate resources, consensus and clarity of the ABC objectives, timing, the organization culture, ABC project, and on going feedback.

The study examines ABC behavioural implementation characteristic factors rather than technical implementation variables. ABC implementation success is associated with organizational and behavioural implementation strategies (Shields, 1995; Shields and McEwen, 1996). Technical implementation variables, independently, such as canned software, custom software, stand alone compared with integrated system, and external consultants do not explain significantly ABC success (Shields, 1995; Shields and McEwen, 1996). The reason could be attributed to the fact that although technical requirements are challenging, they still can be handled effectively when given an appropriate time (Young 1997). Much more attention must be paid to the understanding of the human side of the implementation change. ABC, as well as other types of management innovations, involves major organizational change. To be successful, the whole organization, all management and employees, have to alter the way they perform their job so as to conform to the principles of the new system (i.e. ABC) (Young, 1997). Thus, success or failure in the first place depends on the involvement and commitment of the employees (Thorne and Guard, 1995). Further, an important reason that explains the unsuccessful implementation of ABC in many organizations is the emphasis of these organizations on the architectural and software design of ABC rather than the emphasis on behavioural and organizational issues (Shields and McEwen, 1996).

The study has examined the perceptions of users and preparers of the ABC system in ECU of the likelihood of the ABC implementation to succeed as well as their perceptions of certain ABC behavioural implementation characteristics. Users' and preparers' perceptions are important in implementing ABC systems successfully. Users' and preparers' perceptions may affect their behaviours and consequently affect the success of the implementation (McGowan and Klammer 1997).

1.1 Significance of the study

The study is expected to have both practical and theoretical significance.

Practically, the study will benefit ECU as well as recent and future university implementers of ABC by directing their attention to the characteristics of the system

that have been proved to have positive correlation with the implementation perceived likelihood of success. The study focused on behavioural characteristics of the system implementation rather than technical implementation factors. With reference to the reasons that have been suggested in previous study to explain the decline of many universities so far to consider ABC (Mitchell, 1996, Cropper and Cook, 2000), technical defects and the disability of the system to be used in decision making has never been the reason for the universities rejection of ABC. Rather, rejection has been attributed to mostly behavioural reasons rather than technical reasons (Cropper and Cook, 2000).

The theoretical framework that has been developed and tested in this study integrates factors that were discussed separately in previous studies as associated with ABC implementation success. Therefore, the study can help in confirming the results of previous research and therefore advance the developed theory supporting the association of ABC system certain characteristics and the system implementation success. Another contribution of this study is to empirically test four of the implementation variables that have only been discussed without being empirically tested in previous studies (i.e. organizational culture, project team, feedback and timing). Further, the study will extend the previous models by examining the effect of the independent variables on the dependant variable in a university setting. The study will also extend previous models by investigating the differences, if exist, between users and preparers in how they perceive the independent and dependant variables and the correlation between each party's perceptions of the independent variable and their perception of the dependant variables. Therefore, it can advance the developed theory supporting the implementation of ABC in universities and the educational sector.

The structure of this thesis includes the following chapters: Chapter 2 will review the relative literature published between 1995 and 2003; Chapter 3 describes the research framework of this study; Chapter 4 discusses the study's research methodology; Chapter 5 presents the study's results analysis; and finally Chapter 6 includes the study conclusion, limitations, and suggestions for further research.

CHAPTER 2: THE LITERATURE REVIEW

2.0 Overview

A review has been conducted of literature published between 1995 and 2003 with regard to the implementation of ABC in organizations in general and in universities and educational institutions in particular.

Several studies have been conducted to address various aspects of the implementation of ABC as a cost allocation system. ABC implementation literature has provided insights into understanding the use of ABC in manufacturing organizations and the service sector. This literature examines the significance of several factors on the organization's decision to implement ABC. In addition, the effects and the impact of ABC implementation on the organizations have been the subject of several other studies in the reviewed literature. The more relevant parts of the literature reviewed that will be the focus of our review are the studies of the implementation of ABC in universities, studies that discuss the factors critical to ABC implementation success, studies based on investigating the perceptions of the system participants, and studies adopt the theoretical model that treats the implementation success of ABC as dependent on how it is associated with certain behavioural and organizational variables.

Some of the studies reviewed have explored generally the use of ABC in the manufacturing sector (Sohal and Chung, 1998), and in several service components of the economy (Norris, 2002; Rahl and Hartman, 1998).

Other studies have addressed the factors that significantly influence the decision to implement ABC in organizations in general. Size of the organization, potential for cost distortion, top management support, the significance of overhead expenses, and initiatives such as restructuring/reengineering, balanced scorecard and other strategic

cost management initiatives have been identified by Krumweide, (1997) as significant influencing factors on the decision to implement ABC in the organization. Krumweide, (1998) has confirmed the significance of these factors at the adoption stage of the ABC project.

Some other studies have discussed the effects of ABC on the organization and the impact of ABC implementation on the organization. Edds and Nielsen, (2000) argue that although ABC does not change the organization's culture immediately, the system can, when effectively implemented, form the base of significant culture improvement. The system quality characteristics can benefit the organization in a way that leads to major effect changes such as higher levels of productivity and customer satisfaction. ABC can provide more understanding of the cost structure of products and processes (Landry *et al.* 1997; Sohal and Chung, 1998; Edds and Nielsen, 2000). This can lead to more accurate, reliable, timely, and understandable information (McGowan, 1998; Sohal and Chung, 1998; Landry *et al.* 1997; Greeson and Kokakulah, 1997) and to a more flexibility. (Sohal and Chung, 1998). These benefits provided by the ABC system are potential to offer start points in creating major organizational change effects.

The following sections of this chapter will discuss the insight previous literature has provided in issues relative to this research. Therefore, and for the purpose of this research, previous literature is divided into four streams. The four main streams are: implementing ABC in universities, factors critical to ABC implementation success, perceptions of users and/or preparers of the system, and the theoretical model of variables associated with ABC success.

2.1 Implementing ABC in universities

A review of articles that directly addressed the issue of the implementation of ABC in universities has revealed that increasing costs, shortage of resources, high levels of competition, costumer satisfaction are pressures experienced by universities, to improve their current cost allocation systems (Tatikonda and Tatikonda, 2001; Goddard and Qoi, 1998, Cropper and Cook, 2000). Despite these pressures, the current costing systems in

most universities are of limited benefit. Previous studies of universities indicated that universities are not satisfied with the efficiency of their current traditional costing systems. Effective costing systems should provide information useful for decision making and for the optimal use of resources. ABC differs from traditional cost systems and may have much to offer in this regard (Cropper and Cook, 2000). ABC can benefit universities in regard to the overhead cost allocation and many other issues. ABC is not just cost allocation information; it is an initiation of cost awareness within universities (Goddard and Qoi; 1998, Mitchell, 1996; Tatikonda and Tatikonda, 2001). Although ABC offers a lot of benefits to the universities, previous studies have indicated that the implementation of the system is still limited to few universities (Cropper and Cook, 2000; Mitchell, 1996). Rejection of the system by universities has been attributed to mostly behavioral reasons and not technical reasons (Cropper and Cook, 2000). The identification of priorities other than ABC; shortage of resources; difficulty in getting senior staff commitment; difficulty in getting staff that understand the ABC methods, accept them and cooperate to implement the system; difficulty in carrying out the activity analysis especially staff time analysis; viewing ABC methods as unnecessary especially when the university has not experienced any kind of pressure to implement ABC; viewing the ABC system as just another arbitrary cost allocation method; viewing the system as of no tangible benefit; and feeling reluctant to move from the existing cost system are reasons that previous literature has provided to explain the reluctance of many universities to implement ABC (Cropper and Cook, 2000; Mitchell, 1996).

The literature demonstrates that universities have similar motives to change their current traditional cost allocation system and to adopt more relevant costing system such as ABC. Despite the need to improve their current costing systems, for many reasons, most universities still decline to adopt costing systems that are more relevant to their current needs to respond to the pressures they experience.

2.2 Factors critical to ABC implementation success

In regard to factors critical to a successful implementation of ABC, it has been argued that ABC implementation success is associated with organizational and behavioural

implementation strategies (Shields, 1995; Shields and McEwen, 1996). Technical implementation variables such as canned software, custom software, stand alone systems compared with integrated systems, external consultants, independently, do not explain significantly ABC success (Shields, 1995; Shields and McEwen, 1996). The reason could be attributed to the fact that although technical requirements are challenging, they still can be handled effectively when given an appropriate time (Young, 1997). Much more attention must be paid to the understanding of the human side of the implementation change. ABC, as well as other types of management innovations, involves major organizational change. To be successful, management and employees have to alter the way they perform their jobs so as to conform to the principles of the new ABC system (Young, 1997). Thus, success or failure in the first place depends on the involvement and commitment of the employees (Thorne and Guard, 1995).

Previous literature has identified the following eleven variables that are critical to the success of ABC implementation projects: top management involvement and support; linkage to competitive strategies and continuous improvement programs; linkage to performance evaluation and compensation; training; ownership by non-accountants; adequate resources; consensus and clarity of the ABC objectives; timing; the organization culture; ABC project team and on-going feedback.

2.2.1 Top management involvement and support:

Top management support is independently and significantly associated with ABC success (Krumweide, 1998; Shields, 1995; McGowan and Klammer, 1997). Top management support to the ABC project is the most important factor in determining the extent of the implementation project success (Shields and McEwen, 1996). Reasons behind the deferent levels of ABC success in different organizations is related to top management's level of education, communication, experience and commitment to the ABC project that varies from one organization to another (Norris, 2002).

To achieve top management's support, top management must understand the benefits ABC delivers to the organization (Sohal and Chung, 1998). Top management must also

get involved in setting the project's objectives and goals during the implementation of the system (Sohal and Chung, 1998). Management presence during the implementation process provides the management understanding required for their involvement and commitment to the project (Norris, 2002). Norris (2002) argues that loss of the advantage of top management involvement is more likely when managers join the organization in the post-implementation stages. According to Norris (2002), Norris (1994) explains that as the management involvement advantage stems from the management's consequent understanding of the implementation process beside their ownership of it.

The importance of top management support at all stages of the ABC implementation project is attributed to the legitimacy this support gives to the project and the superior power top management has that can benefit the implementation project. ABC links costs with operations and production. Top management support and involvement affects the implementation of ABC as it creates perception among the employees about the seriousness of the effort they pay in implementing the project (Roberts and Silvester, 1996). Further, since the ultimate power in the organization is within the control of senior management (Norris, 2002), ABC implementation needs the top management strong commitment to provide sufficient resources and motivation for the project at its all phases (Krumweide, 1997).

The ultimate power, the legitimacy and the required resources are in the control of senior management. For these reasons, top management understanding, involvement and support to the implementation in all of its stages is the most significant determinant of the system implementation success.

2.2.2 Linkage to competitive strategies and continuous improvement programs

Linkage of the ABC to competitive strategies and continuous improvement initiatives such as quality and Just-In-Time (JIT) production systems is another factor that is significantly associated with ABC implementation success (Shields, 1995).

Effective and successful ABC implementation plays an important role in helping the organization to achieve continuous improvement. The ABC system should be linked to the company's competitive strategy. Competitive strategies could be based, for example, on the organization's design, on the scale economies, or on distribution and logistics. To be effectively implemented, ABC should be easily designed to generate information tightly linked to the organization's competitive strategy. The closer the linkage to competitive strategies the more the success the ABC implementation will have. Linkage to continuous improvement of quality and time strategies such as initiatives on JIT are important determinants of the ABC success (Shields and McEwen, 1996).

The reason underlying the importance of this factor is that the organization has already developed a clear strategy for how it plans to compete and to improve. The organization's management and employees become disciplined to the strategy they already have chosen. Thus, if the ABC, as well as any other innovation, is not tied and consistent with the critical success factors that flow from the adopted competitive strategy it should not be implemented (Young, 1997). ABC is especially fertile when it backs the organization's competitive ambitions so that the ABC initiative and the organization's ambitions reinforce each other (Thorne and Guard, 1995). Further, ABC implementation is more likely to succeed in organizations of high competition levels (Thorne and Guard, 1995, Anderson *et al.*, 2002) because competition plays a significant role in affecting perceptions of the significance of the ABC implementation task when such implementation is tightly linked to the competition strategy of the organization (Anderson *et al.*, 2002).

Members of the organization who will prepare and use the ABC system are disciplined to the organization strategies to compete and improve. The closer the linkage of the ABC system to competitive strategies and continuous improvement programs the more positive are attitudes of the organization's members towards the system.

2.2.3 Linkage to performance evaluation and compensation

The importance of the linkage of the ABC to performance evaluation of the employees

and to the employees' compensation plan as a key factor that affects the ABC implementation success has been discussed by several studies.

Linkage to performance evaluation and compensation is a significant determinant of ABC implementation success (Shields, 1995).

The importance of this factor is natural. Employees pay attention to things that affect their welfare. When linked to the performance evaluation and compensation plan of the organization, ABC success will be used to evaluate the performance of the employees and to determine their compensation. When the employees believe that the resulting system will be used to evaluate their performance, they will be then motivated to help the system succeed (Shields and McEwen, 1996).

Therefore, the compensation plan should be linked to the output of the ABC system to motivate the employees' acceptance to the system (Shanahan, 1995). In organizations or departments where ABC is not linked to the performance evaluation and compensation plan, employees may have little incentive, or at best be indifferent, to the use of ABC information in their daily operations (Shields and McEwen, 1996; Roberts and Silvester, 1996).

In fact, ABC implementation takes at least several months to complete. The implementation project team is required to play a major role in the ABC system design, data collection and reporting as well as meet their regular commitments. ABC implementation should include performance measures not only to help to maintain the project enthusiasm, but also to help managers to pursue the implementation continual improvement of the project (Thorne and Gurd, 1995).

Considering the significant amount of time for the implementation effect to occur, medium-term, not short-term profit margins are the better to assess whether employees' attitude, behaviours, and performance are changing and to help direct the course of implementation. These measures could include behavioural science methods, such as psychometrically, sound attitude surveys, focus groups, and observation of the work environment (Young, 1997).

The enthusiasms the linkage of ABC to the organization's performance evaluation and compensation plan creates among users and preparers of the system as well as the help it provides to managers to pursue the implementation improvement of the project make this variable an important factor affecting the system implementation success.

2.2.4 Training

The amount of training provided to all employees in the organization concerning designing, implementing, and using ABC to help them understand the complexity and the impact of the project on the organization is an important factor that is significantly associated with ABC success or receiving financial benefits from ABC (Shields, 1995; Sohal and Chung, 1998). Training plays an important role in helping the organization to reach the highest level of ABC implementation. This role could be less critical if the organization's intention is to use ABC less extensively (Krumweide, 1998).

The highest order of success occurs when the employees understand and then truly believe that the ABC innovation is the right solution to solve the existing problems in their organization (Young, 1997). The importance of this factor comes from the fact that training helps the employees to understand ABC. Proper training does not only provide technical knowledge to the employees, it also influences the employees' perception of the significance of the ABC implementation task (Anderson *et al.*, 2002). It educates the employees of how ABC differs from traditional cost accounting and why ABC provides a superior economic measurement and information system. Without the knowledge of why and how ABC works, employees are likely to ignore or misunderstand it (Shields and McEwen, 1996). Employees with insufficient related training would not know what they are doing and may not be willing to be involved in the project (Shanahan, 1995).

Training must be provided to the employees at all levels, from the managerial level to the at-the-point-of-production or service employee level, to achieve its purpose of helping to succeed the ABC project. ABC success rest on improvements in variables related to time and cost and quality of products and services. Thus, employees who make the organization's products and deliver its services are as important as those at

high employment levels in regard of receiving the ABC related training (Young 1997, Thorne and Gurd, 1995).

Further, training in the design, implementation, and use of ABC provides an important way in educating the organization in how and why to achieve other critical factors determining the ABC success such as the linkage of ABC to competitive strategies, continuous improvement programs, and performance evaluation and compensation. Training also helps increase non-accounting ownership (Shields and McEwen, 1996).

Training concerning designing, implementing, and using the system provided to employees at all levels is an important success factor as it helps the employees to understand the complexity of the system as well as the impact of the system on the organization.

2.2.5 Ownership by non-accountants

ABC “ownership” by non-accountants and the belief by non-accountants that ABC is of a practical use to all employees in all departments (e.g. marketing, engineering, manufacturing departments) and not just to the accounting department is significantly associated with ABC success (Shields, 1995; Shields and McEwen, 1996)

Non-accounting ownership plays a critical role in reaching the highest level of implementation, but, as it is the case for training, it may not be as critical if the firm’s intention is to use ABC less extensively (Krumweide, 1998).

To be more cooperative and positive towards the system, employees at all departments must perceive the system as of practical use to them no matter which department they are from.

2.2.6 Adequate resources

The amounts of resources provided for the ABC implementation relative to the actual amount needed by it is another significant determinant of the ABC implementation success (Shields, 1995; Shields and McEwen, 1996; Sohal and Chung, 1998).

Resources provided to the ABC project are internal resources and external resources. Internal resources primarily include time and personal resources (for example, the commitment of accountants, managers, and operational employees). External resources include commercial software and consultants (Shields and McEwen, 1996).

Internal resources have been argued to be more significant to the implementation success rather than external resources. Shields and McEwen (1996) have found that most companies should focus more on internal resources. They argue that having at least adequate employee resources is an important determinant of the ABC success. Time also is an important element for ABC implementation. The more the time goes on for the ABC project the more the degree, in which ABC is used, and the more the purposes for which ABC is used (Krumwiede, 1998). Based on the case study experiences presented by Sohal and Chung (1998), time allowed to data gathering and analysis during working hours (e.g. by allowing full-time availability to key people), and time allowed to achieve confidence with the system is absolutely necessary for the ABC implementation process.

Shields and McEwen (1996) have rejected the importance of the access to external expertise and either commercial or custom designed software as an important to the ABC success. Their results in this regard confirm the results of Shields (1995). However, contrasting the results of Shields and McEwen (1996) and those of Shields (1995) in regard to the external expertise, Sohal and Chung (1998) have identified the access to external expertise, especially when new developed software and concepts are taking place, as a key determinant of successful ABC implementation.

Resources adequate to the project's needs are vital to the system success. Internal resources, time and personal in particular, are of the most significance.

2.2.7 Consensus and clarity of the ABC objectives

The clarity of the objectives and the purposes and consensus about the objectives of ABC are important determinants of ABC success in the organization (Shields and McEwen, 1996).

Attitudes toward ABC are influenced by the objectives of the implementation of the system (Thorne and Gurd, 1995). When the purposes of the ABC project are precisely known and the objectives of the project are well specified (clarity), ABC designers and users can develop a clear understanding of how the system should be designed and how it should be used. When everyone in the organization, designers and users, agree on the project's objectives, everyone will give the required effort and resources and all will work in harmony (Shields and McEwen, 1996).

To achieve the desired clarity, the implementation must be kept as simple as possible (Sohal and Chung, 1998). Sohal and Chung suggest introducing the implementation as a pilot project initially. Clear, not complex, objectives will enable the users of the project to understand what they are doing and why (Shanahan, 1995). Generating useful, comprehensible and understandable reports to illustrate the objectives and the effect of the change is a suggested way to simplify and allow understanding of the effects of the project (Young, 1997).

The clear objectives of the ABC implementation play an influential role in the embracement of the project by the different levels of the organization. A focus on cost management generates enthusiasm for ABC among managers. Employees show positive attitudes towards the embracement of the project if the project's objectives are in their own best interests as well as in the best interests of the organization (Thorne and Gurd, 1995). Employees are more likely not to commit themselves to the change if they perceive that the objectives of the projects are not committed to them. Further, and from a job security point, employees have also difficulty in granting consensus on any change if the change is not in the best interest of the organization (Young, 1997). Anyhow, sometimes and regardless of the best interest of the organization, neither the employees nor the decision makers are willing to agree on the project if they perceive that implementing it will threaten their own jobs security (Roberts and Silvester, 1996).

Clarity of the project's objectives helps the system participants to understand the system and to realize that the project is of the best interest of the organization as well as the best interest of them. This leads the employees to show enthusiasm and to grant their consensus on the project's objectives.

2.2.8 Timing

Timing of initiating, implementing and using ABC is of a critical importance to the success of the system implementation.

The timing of initiating ABC in the organization is critical in determining its acceptance and therefore its success. ABC cost management is more likely to have positive response from employees in times of expansion than times of decline. In the times of decline, employees could feel threatened by cost management initiatives. But, the decline in profit may be one of the reasons for implementing ABC. In this case, the cost management aspects of the project should be introduced as essential for the sake of the organization's survival. The times the organization is implementing other management initiatives and the times of the organization's stability or instability are other timing issues that have to be considered when implementing ABC (Thorne and Gurd, 1995).

The timing of switching from the old cost management system to ABC is another critical timing issue for a successful implementation of ABC. In regard to this issue, a careful balance should be maintained by keeping the old system running long enough so that people in the organization can learn the new system, but not so long to the extent that they will have little incentive to switch to the new system (Young, 1997).

Timing is also of a great importance when the information generated by the system is available at the time it is needed so it can be used at well and users can take advantage of it before it is too late (Roberts and Silvester, 1996).

Determining the right time to initiate the system as well as the right time to shift from the old costing system to the new ABC system are critical timing issues that lead to a successful implementation of the ABC project. Providing information generated from

the system at the right time when it is needed is also an important timing issue that has to be considered for the purpose of implementing the ABC system successfully.

2.2.9 The organization culture

ABC, as well as most of management innovations, is not merely an accurate way of allocating indirect costs to products or processes. It is rather an innovation that involves a major organizational change effort that aims to improve the organization's efficiency and effectiveness. An important reason for the success of implementing a major change is to have an organizational culture that allows the embracement of such change. The experience of successful implementation of major change innovations is an indicator of the existence of such culture in the organization (Young, 1997).

More open organizations, organizations that are committed to continuous improvement and to achieve world-wide class competitiveness, and those whose ABC project is a part of a wider organizational change program are examples of organizations that already have the organizational culture that helps ABC implementation to succeed (Thorne and Gurd, 1995).

Creating a climate that supports continuous improvement and major change innovation is an important step before attempting an ABC implementation (Roberts and Silvester, 1996). In creating the appropriate climate, the real challenge does not lie in the technical aspects. It rather lies in the human elements of the projected management system. To avoid problems, the resistance of employees to the project must be minimized so as the employees will readily accept it. This could be achieved by showing the employees what the new system will do and how to use it. All employees affected by the projected system must be shown that they will be treated fairly, receive training in new tasks, where appropriate, and have their success in the project recognized (Shanahan, 1995).

To get the best results of the system implementation process, the organization should have the culture that helps ABC implementation to succeed. Open organizations that are committed to continuous improvement and to achieve worldwide class competition and

those whose ABC project is a part of a wider organizational change program are organizations that have the appropriate culture for the implementation success.

2.2.10 ABC project team

To be successfully implemented, ABC requires collection and analysis of extensive data from widespread resources. An ABC project team will best achieve this, even if the implementation is led by an external consultant (Thorne and Gurd, 1995).

The project team must have members who have good communication and analytical skills. The team members should be approachable. They should encourage the employees to cooperate and to suggest ways to improve the process. The team members should also have a good understanding of all production and support functions. A broad representation of the team members is also important for successful implementation; it increases the quality of the project team (Thorne and Gurd, 1995) and has a significant link to the implementation conflicts resolution (Anderson *et al.*, 2002). The cohesion is a key determinant to the time it takes to develop the implementation project (Anderson *et al.*, 2002); so, the project team members must be cooperative and share similar values and attitudes. An experienced and knowledgeable team leader is vital to the overall success of the implementation (Sohal and Chung, 1998).

In summary, what is needed is a project team that is cohesive and has a broad representation. The team should have members who have good communicational and analytical skills. The team members are to be cooperative and share similar values and attitudes. The team members should be approachable and encourage the employees to cooperate and to suggest ways to improve the implementation process. The team members must have a good understanding of all productions and support functions of the organization.

2.2.11 On-going feedback

On going feedback to top management and lower level employees on the progress of the ABC implementation project is one of the key ingredients for successful ABC

implementation (Sohal and Chung, 1998).

The on going feedback of information on the results of the project should be directed to all levels in the organization. This may increase commitment and confidence in the implemented project (Thorne and Gurd, 1995).

Commitment and confidence in the implementation project can be achieved by an on going feedback on the progress of the implementation project as well as on the results of the project. The feedback should be directed to all levels of the organizations from the top management to the lower levels employees.

2.3 Perceptions of users and/or preparers of the system

Several studies have explored the likelihood of the ABC system to succeed, or different aspects of the system implementation, through the investigation of the system users' and/or preparers' perceptions or attitudes towards the system.

Shields (1995) has measured ABC success by investigating the “overall” degree of success the system has through the perception of respondents of different roles in the ABC implementation projects in 143 firms. The same study has investigated also the respondents' perceptions of several system characteristic variables so as to determine the association of these variables with ABC success.

McGowan (1997) has also examines the employees' perceptions concerning the success of ABC implementation and their perceptions of *behavioural technical and situational* variables relative to the system implementation.

McGowan (1998) has based his study on exploring ABC users' and preparers' perceptions of the impact of ABC adoption and their perceptions of several behavioural and technical benefits of the ABC implementation.

McKeen *et al.* (1994) has investigated the relationship between user participation in the system development and user satisfaction with the system through the analysis of users' perceptions of variables relative to the investigated relationship as well as of four contingency factors that play key roles on these relationships.

Thus, the overall degree of the system success, the impact of the system adoption, the relationship between user participation and user satisfaction as well as behavioural technical and situational key implementation factors have all been measured and explored in previous studies throughout investigating the system participants' perception.

2.4 The theoretical model

Several studies reviewed adopt the theoretical model that treats the implementation success of ABC as a dependant variable that depends on how it deals with certain characteristic behavioural and organizational independent variables.

Shields (1995) identified top management support, link to competitive strategies, link to performance evaluation and compensation, training, ownership by non-accountants, and adequate resources as the independent variables of the study. ABC success has been identified as the independent variable of the study. The theoretical model of the study is based on the hypothesized correlation between the independent variables and the dependent variable.

McGowan's (1997) theoretical model is similar to that adopted by Shields (1995). It also examines the correlation between employees' satisfaction as the study's dependent variable with independent variables that he described as ABC implementation and behavioural technical and situational independent variables describing the characteristics of the implementation and the ABC system.

Based on the literature reviewed, this study will adopt a similar theoretical model to models used in the relative literature to examine the effect of the variables critical to the

ABC implementation project success that are identified separately in the previous studies (independent variables) on the likelihood of ABC to succeed in a university setting (dependent variable).

Previous studies (Shields 1995, McGowan 1997) have provided precedents to the theoretical model adopted for the purpose of this study that the dependent and independent variables tested in this research study include variables that have been tested in previous studies.

The study will be the first to integrate in one study the mentioned above success independent variables, which have been subjects of several different previous studies and to examine in a university setting its effect on the success of implementing ABC.

2.5 Summary

The studies reviewed have explored generally the use of ABC in several economic sectors, addressed the factors that significantly influence the decision to implement ABC and discussed the effects and the impacts of ABC on the implementing organization.

For the purpose of this study literature is divided into four main streams: implementing ABC in universities, factors critical to ABC implementation success, perceptions of users and/or preparers of the system, and the theoretical model of variables associated with ABC success.

Despite the motives universities have to change their current traditional costing systems, for many reasons, most universities still decline to improve their costing systems or to adopt more relevant costing systems.

Previous studies argued that ABC success is associated with behavioral and organizational factors rather than technical implementation variables. The literature reviewed has identified eleven behavioral factors as variables critical to ABC

implementation success.

Users' and preparers' perceptions may affect their behaviors and consequently affect the success of the implementation. Accordingly, previous studies have explored several aspects relative to the ABC implementation through the investigation of the system's participants' perceptions.

Previous studies have provided precedents in adopting theoretical models that treat the ABC implementation success as depends on and explained by how it deals with certain characteristic behavioral and organizational variables similar to the variables tested in this study.

CHAPTER 3: RESEARCH FRAMEWORK

3.0 Overview

This study is based on testing the association between users' and preparers' perception of the likelihood of the ABC system to succeed as the dependant variable of the study with the system users' and preparer's perceptions of certain implementation characteristic factors as the independent variables. Based on the outcomes of the literature review, and based on the research objectives and questions, the independent variables and their hypothesized positive correlation with the dependant variable form the theoretical model of this study.

3.1 Research objectives

The research aims specifically to examine in a university setting (ECU) the significance of the correlation between the employees' perception of certain ABC implementation factors and their perceptions of the likelihood of the ABC implementation project to succeed.

3.2 Research questions

This study has focused on examining the general perception of ECU ABC users and preparers in regard to the likelihood of the ABC implementation to success and their perception of eleven ABC characteristic variables.

Specifically, this study examines the following questions:

- How do ECU ABC users and preparers perceive the likelihood of ABC implementation in the university to succeed?
- How do ECU ABC users and preparers perceive the eleven independent variables identified by the study, i.e., university's top management involvement in and support to the ABC implementation, linkage to competitive strategies and continuous improvement programs, linkage to the performance evaluation and the university's compensation plan, training concerning designing, implementing, and using of the ABC system, ownership by non-accountants, adequacy of internal resources and external resources, clarity of and consensus on the objectives and purposes of the project, timing issues related to initiating, implementing and using ABC, the university culture, the ABC project team and the on going feedback on the progress of the ABC implementation project?
- Is there a significant correlation between users' and preparers' perceptions of the likelihood of the system to succeed and their perceptions of some of or all of the identified independent variables?
- Are there differences between users and preparers in the way they perceive the independent and dependant variables and the correlation between each party's perceptions of the dependent variable and the eleven independent variables?

3.3 Identification of Variables

The research variables have been identified based on the research objectives and on the preliminary literature review.

The research objectives have identified the study dependent and independent variables. The study aims, through the investigation of ABC users and preparers' perceptions, to examine the correlation of the likelihood of implementing ABC successfully with ABC implementation characteristic factors in a university setting.

Concepts similar to the dependant variable and to the independent variables of this study have been used in previous studies as per the literature been reviewed by the researcher (McKeen, Guimaraesa and Wetherbe, 1994; Shields, 1995; Thorne and

Guard, 1995; Shanahan, 1995; Shields and McEwen, 1996; Roberts and Silvester, 1996; Krumweide, 1997; McGowan and Klammer, 1997; Young, 1997; McGowan, 1997; McGowan, 1998; Krumweide, 1998; Sohal and Chung, 1998; Norris, 2002; Anderson *et al.*, 2002). The way previous studies have used concepts similar to this study's variables and/or the insight these studies have provided in the identification of the variables of this study is explained in the following paragraphs of this section.

3.3.1 Identification of the dependent variable

This study will use the concept of users' and preparers' perception of the likelihood of the ABC system to succeed as the dependent variable of its theoretical framework.

Concepts similar to the concept of "the employees' perception of the likelihood of the system to succeed" have been used in previous studies. User satisfaction (McKeen *et al.*, 1994; McGowan, 1997), ABC success (Shields, 1995), the employees' perception of, and attitude towards the system (McGowan, 1998) have been dependent variables in the theoretical frameworks of previous researches.

This crude concept of success has been argued that it does not provide a specific definition of success (Shields, 1995). Shields argues that previous literature and discussions with ABC experts have not provided a consensus on a clear specific definition of success. Therefore, this research will adopt Shields approach that the dependent variable will present the employees' perception of the success likelihood ABC will achieve in ECU according to whatever each participant perceive the definition of success.

3.3.2 Identification of the independent variables

The aim of the study is to examine the associations of the dependent variable with ABC organizational and behavioural implementation factors. The implementation characteristic factors subjects of this research have been identified as the independent variables of this study.

The study examines only behavioural implementation variables because of the significance of behavioural and characteristic implementation factors rather than the technical implementation factors in explaining the ABC implementation success in a university setting. With reference to the reasons identified by previous studies (Mitchell, 1996; Cropper and Cook, 2000) and introduced to explain why many universities so far have failed to consider ABC, technical defects and the disability of the system to be used in decision making has never been the reason for the universities rejection of ABC. Rather, rejection has been attributed to mostly behavioural reasons and not technical reasons (Cropper and Cook, 2000).

Technical implementation variables, independently, do not explain significantly ABC success. Technical variables can play their role in increasing the success of the implementation if they support the behavioural factors and if they are used in conjunction with behavioural factors. Therefore, ABC implementation success is rather associated with organizational and behavioural implementation factors (Shields, 1995; Shields and McEwen, 1996; Young, 1997; Thorne and Guard, 1995). The reason could be attributed to the fact that although technical requirements are challenging, they still can be handled effectively when given an appropriate time (Young, 1997). Success or failure of the system, in the first place, depends on the involvement and commitment of the employees (Thorne and Guard, 1995). Much more attention must be paid to the understanding of the human side of the implementation change. ABC, as well as other types of management innovations, involves major organizational change. To be successful, management and employees have to alter the way they perform their jobs so as to conform to the principles of the new ABC system (Young, 1997).

The research has focused on ABC users and preparers in ECU perceptions of the following organizational and behavioural implementation factors as the independent variables:

Top management involvement and support

Senior management are in the control of the ultimate power, the legitimacy and the required resources. For this reason, top management support to, understanding of, and involvement in the implementation in all of its stages is a considerable determinant of the system implementation success (Shields, 1995;

Shields and McEwen, 1996; Roberts and Silvester, 1996; Krumweide, 1997; McGowan and Klammer, 1997; Krumweide, 1998; Sohal and Chung, 1998; Norris, 2002).

Linkage to competitive strategies and continuous improvement programs

Another factor to be tested whether it is significantly associated with ABC implementation success is the linkage of the ABC implementation project to the organization's competitive strategies and continuous improvement initiatives such as quality and JIT. Members of the organization who will prepare and use the ABC system are disciplined to the organization strategies to compete and improve. Thus, the linkage of the ABC system to competitive strategies and continuous improvement programs affects positively the organization members' attitudes towards the system (Shields, 1995; Thorne and Guard, 1995; Shields and McEwen, 1996; Young, 1997; Anderson *et al.*, 2002).

Linkage to performance evaluation and compensation

The importance of the linkage of ABC to performance evaluation and compensation as a factor affecting the ABC implementation success comes from the enthusiasm it creates among users and preparers of the system. Linkage of the system to performance evaluation and compensation provides helps managers to pursue the implementation improvement of the project (Shields, 1995; Shanahan, 1995; Thorne and Gurd, 1995; Shields and McEwen, 1996; Roberts and Silvester, 1996; McGowan and Klammer, 1997; Young, 1997).

Training

Training provided to employees at all levels concerning designing, implementing and using the ABC system is another important success factor to the ABC implementation. It helps the employees to understand the complexity of the system as well as the impact of the system on the organization (Shields,

1995; Shanahan, 1995; Thorne and Gurd, 1995; Shields and McEwen, 1996; Young, 1997; McGowan and Klammer, 1997; Sohal and Chung, 1998; Krumweide, 1998; Anderson *et al.*, 2002).

Ownership by non-accountants

Ownership by non-accountants is likely to be significantly associated with ABC success. The likelihood to take ABC “ownership” by non-accountants as well as by accountants creates the belief by the employees that ABC is of a practical use to all employees in all departments (e.g. marketing, engineering, manufacturing departments) and not just to the employees in the accounting department. To be more cooperative and positive towards the system, employees at all departments must perceive the system as a system of practical use to them no matter which department they are from (Shields, 1995; Shields and McEwen, 1996; Krumweide, 1998).

Adequate resources

Resources provided to the ABC project are internal resources and external resources. Internal resources primarily include time and personal resources such as the commitment of accountants, managers, and operational employees. External resources include commercial software and consultants. Adequate amounts of resources provided for the ABC implementation relative to the actual amount needed by it is essential to the system implementation process to survive (Shields, 1995; Shields and McEwen, 1996; Sohal and Chung, 1998; Krumwiede, 1998).

Consensus and clarity of the ABC objectives

The clarity of the objectives and the purposes and consensus about the objectives of ABC are important factors to the ABC implementation project. Objectives of the implementation project must be clear to the project participants. Clarity of the project’s objectives helps the system participants to understand the system and to realize whether, or not, the project is of the best

interest of the organization as well as it is of the best interest of them. This leads the employees to show enthusiasm and to grant their consensus on the project's objectives. When they agree on the project's objectives, employees of the organization, designers and users of the ABC project, are more likely to give the required effort and resources required. (Shanahan, 1995; Thorne and Gurd, 1995; Shields and McEwen, 1996; Roberts and Silvester, 1996; Young, 1997; McGowan and Klammer, 1997; Sohal and Chung, 1998).

Timing

Timing of initiating, implementing and using ABC is of a critical importance to the ABC system implementation. Determining the right time to initiate the system as well as the right time to shift from the old costing system to the new ABC system are critical timing issues in the implementation process of the ABC project. When the project is already implemented, providing information generated from the system at the right time when it is needed is also an important timing issue that has to be considered so the system outputs can be used at well and users can take advantage of it before it is too late ABC (Thorne and Gurd, 1995; Roberts and Silvester, 1996; Young, 1997).

The organization culture

ABC involves major organizational change effort that aims to improve the organization's efficiency and effectiveness. It is important for the implementation of a major change in an organization to have the organizational culture within the implementing organization that allows the embracement of such change. An indicator of the existence of such culture in the implementing organization is the pre-experience of successful implementation of other major change innovations in that organization. Open organizations that are committed to continuous improvement and committed to achieve worldwide class competition and those whose ABC project is a part of a wider organizational change program are examples of organizations that have the appropriate organizational culture for the ABC implementation. When creating the appropriate culture and the appropriate climate for the

implementation of ABC as well as the implementation of other organizational major changes, the real challenge lies in the human elements of the organization rather than the technical aspects. Therefore, the employees' resistance to the change must be minimized so that the employees will readily accept it. This could be achieved by explaining the change to the employees. The employees must be provided by adequate information on the objectives and uses of the new change. All employees affected by the projected change must be shown that they will be treated fairly, receive training in new tasks, where appropriate, and have their success in the project recognized (Thorne and Gurd, 1995; Shanahan, 1995; Roberts and Silvester, 1996; Young, 1997).

ABC project team

The ABC project requires a project team that is cohesive and has a broad representation that is needed for the purposes of the collection and analysis of extensive data from widespread resources. The team should have members who have good communication and analytical skills. The team members are to be cooperative and share similar values and attitudes. The team members should be approachable and encourage the employees to cooperate and to suggest ways to improve the implementation process. The team members must have a good understanding of all productions and support functions of the organization (Thorne and Gurd, 1995; Sohal and Chung, 1998; Anderson *et al.*, 2002).

On going feedback

Commitment and confidence in the implementation project can be achieved by an on going feedback on the implementation project. The progress of the implementation project as well as on the results of the project should be directed to all levels of the organizations from the top management to the lower levels employees (Thorne and Gurd, 1995; Sohal and Chung, 1998).

With reference to the literature reviewed, these eleven behavioural factors were separately included in different previous studies as variables associated with ABC

implementation success. This inclusion of the previous literature to these eleven factors highlights these factors importance to this study as potential factors that play a critical role in implementing ABC successfully (Shields, 1995; Shanahan, 1995; Thorne and Guard, 1995; Roberts and Silvester, 1996; Shields and McEwen, 1996; Krumweide, 1997; Young, 1997; Krumweide, 1998; Sohal and Chung, 1998; Anderson *et al.*, 2002; Norris, 2002).

This research has integrated in one study these factors that were separately addressed in previous papers and has tested the significance of their effect, individually and altogether, on ABC likelihood to succeed in a university setting.

3.4 Perceptions of users and/or preparers of the system

By the investigation of ABC users and preparers' perceptions, this study has examined the correlation between the likelihood of ABC implementation success in a university setting and certain characteristic implementation factors.

The study based on users' and preparers' perceptions in identifying behavioural factors that are important determinants of the likelihood of ABC implementation success. The system users' and preparers' perceptions is critical to the success of the system implementation. Users' and preparers' perceptions may affect their behaviours towards the implementation process and consequently affect the success of the system implementation (McGowan and Klammer, 1997).

Several previous studies to this research have explored the likelihood of the ABC system to succeed, or different aspects of the system implementation through the investigation of the system users' and/or preparers' perceptions or attitudes towards the system. The overall degree of the system success, the impact of the system adoption, the relationship between user participation and user satisfaction as well as behavioural technical and situational key implementation factors have all been measured and explored in previous studies throughout investigating the system participants'

perception (Shields, 1995; McGowan and Klammer, 1997; McGowan, 1998; McKeen *et al.*, 1994).

3.5 The theoretical framework

The theoretical framework of this study treats the likelihood of ABC to succeed as dependant on how it deals with certain independent behavioural and organizational implementation factors. It hypothesizes the existence of positive correlations between each independent variable as well as all the independent variables and the independent variable of the study. The study will test this theoretical model by examining the existence of the positive correlations between each of the independent variables individually and the dependent variable of the study. The existence of the positive correlation between all of the independent variables and the dependent variable will also be tested. The research theoretical framework hypothesizing the positive correlation between the dependent variable and the independent variables can be depicted in Figure (1).

Several studies reviewed adopt the theoretical model that treats the implementation success of ABC (i.e. dependant variable) as dependent on how it relates with certain characteristic behavioural and organizational variables (Shields, 1995; McGowan and Klammer, 1997). Therefore, previous studies have provided precedents to the theoretical model adopted in this research.

3.6 Hypotheses

The hypotheses tested in this research are based on the study theoretical framework. The hypotheses of the study propose the existence of positive correlations between the users' and preparers' perceptions of the dependant variable and their perceptions of each of the independent variables individually. The hypotheses further assume the existence of a positive correlation between the system preparers' and users' perceptions of the eleven behavioural independent integrated and their perceptions of the dependent

variables. The hypotheses assume a difference between preparers and users of the system in regard to their perceptions of the dependant and independent variables.

The study has proposed hypotheses 1-11 based on the potential importance of the eleven characteristic behavioural variables subjects of these hypotheses to the success of ABC system implementation. These variables have been identified as important determinants of ABC implementation success by previous literature (Shields, 1995; Shanahan, 1995; Thorne and Guard, 1995; Roberts and Silvester, 1996; Shields and McEwen, 1996; Krumweide, 1997; Young, 1997; Krumweide, 1998; Sohal and Chung, 1998; Anderson *et al.*, 2002; Norris, 2002). The aim of testing these hypotheses is to determine what behavioural and characteristic factors are important to employees and their willingness to accept the ABC system and to work to successfully implement it (Shields, 1995).

The study has examined whether the employees perceive top management involvement and support as an important factor to the ABC implementation project. Top management are the highest authority of the organization. Top management provide the required resources and attention to the innovation they support and do not provide resources and attention to innovations they do not support. Top management can play a political role by encouraging or pushing aside individuals or groups of employees who resist the implementation project (Shields, 1995). Accordingly:

H1 Users' and preparers' perception of the ABC implementation success is positively correlated with their perception of top management involvement and support.

The employees' perceptions of the ABC system linkage to competitive strategies and continuous improvement programs and the system linkage to performance evaluation and compensation as important to the system implementation success has been examined by testing of H2 and H3. Linkage to competitive strategies is important because it motivates the employees as they will perceive that the use of the implemented system's information will improve their organization's competitive position. The system linkage to performance evaluation and compensation is also important because employees will perceive that they will be rewarded if they focus on successfully implementing the system (Shields, 1995).

H2 Users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the system linkage to competitive strategies and continuous improvement programs.

H3 Users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the system linkage to performance evaluation and compensation.

Hypothesis 4 tests the employees' perception of training as a significant determinant of ABC implementation success. The study will test the employee's perception of training in the system designing, implementing and using as an effective way for employees to understand, feel familiar with and accept the system (Shields, 1995).

H4 Users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the system related training.

Since the ABC system is intended to be used by a variety of employees from different departments, employees' perception of the ownership of the ABC project by all department and not only by the finance department is an important determinant of the system success in the organization (Shields, 1995). To examine that, Hypothesis5 is proposed:

H5 Users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the system non-accountants ownership.

Sufficient resources available for the implementation project are important because employees will perceive that they will be provided by the required resources to implement the system so that they will not be pressured to do more work (Shields, 1995). To examine that Hypothesis6 is proposed:

H6 Users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the adequacy of the amount of resources provided to the system.

The consensus of the employees about the objectives of the ABC project and the clarity of these objectives is important to the project implementation success because the users and preparers of the system will perceive that the system's information are produced and used in an effective and efficient manner (Shields, 1995). To examine that Hypothesis 7 is proposed:

H7 Users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the consensus on and clarity of the implementation objectives.

Hypotheses 8-11 have been proposed to examine timing, the suitability of the university's culture, the project team and the on going feedback as important behavioural variables perceived by the employees as significant factors in determining the system implementation success:

H8 Users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the implementation timing issues.

H9 Users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the suitability of the university's culture to adopt such project.

H10 Users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the ABC project.

H11 Users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the ABC project team on going feedback.

The use of behavioural implementation variables in concert will affect positively the likelihood of the ABC implementation project to succeed. ABC success will be increased when behavioural implementation variables are integrated and used as a part of the implementation strategy. The behavioural implementation variables when used in combination as a part of the implementation strategy will provide a powerful indicator

to the employees that the ABC project is important to themselves as well as to the firms' success. This will enable more understanding and acceptance of the employees and reduce their resistance to the ABC project (Shields, 1995). To examine that, Hypotheses 12 and 13 are proposed.

H12 There is a positive significant correlation between users' perceptions of the dependent variable and their perceptions of the eleven independent variables.

H13 There is a positive significant correlation between preparers' perceptions of the dependent variable and their perceptions of the eleven independent variables.

The difference between the two subgroups: the preparers and the users in regard to how each subgroup perceive the dependent variable and their perceptions of the independent variables has never been previously explored by previous studies. Hence, H14, which is tested in this study to explore the existence of this difference, was stated *non-directionally*. The researcher test in this stage the existence of the differences between the two subgroups without investigating the directions of these differences: which group's perceptions are the most positively, or negatively, correlated. Whenever the existence of those differences is proved, future research can conduct an investigation and develop *directional hypothesis* on the direction of that difference between the preparers and users subgroups (Cavana, Delahaye and Sekaran, 2001).

H14 There is a difference between users and preparers in their perceptions of the dependent and independent variables.

3.7 Summary

Therefore, by testing the study's 14 hypotheses, we will examine the employees' perceptions of the significance of the integration of the study's eleven ABC system's characteristic behavioural factors as a part of the implementation strategy and the significance of each of these behavioural factors on the perceived successful implementation of the system project. By testing the study's hypotheses, we will also

examine the existence of a difference between users' perceptions and preparers' perception of the significance of the studied behavioural factors on the system implementation success.

CHAPTER 4: RESEARCH METHODOLOGY

4.0 Overview

This study has collected and analyzed information to measure the ABC preparers' and users' perception of the dependent variable as well as their perception of each of the independent variables. Data then have been used to test the research hypothesis concerning the correlates of these perceptions.

This research methodology is consistent with similar methodologies have been used in previous literature. Shields (1995) has tested hypothesized correlations of ABC success as dependent variable with behavioural eight independent variables. McGowan and Klammer (1997) model has extended Shields (1995) model and measured ABC satisfaction as a dependant variable and several behavioural, technical and situational as independent variables. McGowan (1998) study has measured the correlation of perceived benefits of ABC as independent variables with the general attitude towards the ABC system as the dependant variable.

4.1 Sample

Testing the above hypotheses concerning the correlates of users' and preparers' perceptions of the dependant variable and the eleven independent variables required the selection of a sample of preparers and users of the ABC project at ECU. This required in the first place the identification of the entire population of ABC preparers and users in ECU whose perceptions the study wished to investigate.

The primary targets from which the sample of this study was selected for the purpose of data collection were the ABC project leaders or project managers (the preparers) and the project end users (the users). ABC Project Management group and the ABC Steering Committee were the ABC project managers at ECU. The project end users were managers in ECU schools and centres.

The sample selected for the purpose of this research study consisted of forty six persons involved in the implementation process of the ABC project in ECU whom were asked to participate in the study. These 46 individuals (the research sample) were chosen from the ABC Project Management Group, the ABC Steering Committee, ECU Centres and ECU schools.

The sampling process of this study involved the selection of preparers and users of ABC in ECU who are in the best position to provide the information required. The selected sample elements were expected to have the required knowledge that they have gone through the experiences and processes related to the implementation of ABC in ECU to provide good information (Cavana *et al.*, 2001). All persons of the ABC Project Management Group and The ABC Steering Committee were included in the sample as preparers. Only the directors of the centres and heads of schools were included in the sample and were asked to participate as users. This sampling method was viewed by the researchers as the best sampling method for obtaining the required information from those who are of more knowledge and better ability to provide the information sought (Cavana *et al.*, 2001). Non-probability judgement sampling has been a common sampling method in previous research. The sample in McKeen *et al.* (1994) study consisted of organizations that were selected regarding to its characteristics. Participants of the study were project leaders and the *primary* users.

Therefore, the study's 46 user and preparer sample consisted of 26 participants identified by the study as preparers and 20 participants identified as users. The study sample has included all individuals identified as preparers of the ABC project in ECU. Only directors of the ABC project centres and ECU heads of schools who do not have any role in the Project Management Group and The ABC Steering Committee have been included in the sample, identified and asked to participate as users of the ABC system. The sample was comprised of persons representing the whole variety of the

ECU areas, which will be analysed for the ABC model with a maximum of 200 – 300 activities that includes all ECU business units. A description of the sample distribution over the ECU business units is presented in Table 1.

Table 1 Description of the Sample Distribution

ECU Business Unit	Preparers	Users	Total
Vice Chancellery	1	0	1
Finance and Administration	7	0	7
Facilities and Services	1	0	1
Knowledge and IT	1	1	2
Learning and Development Services	1	1	2
Governance, Policy & Planning Services	0	1	1
Research, Advancement & Enterprise	5	2	7
Faculty of Business & P. Management	1	4	5
Faculty of Regional Prof. Studies	2	0	2
Faculty of Computing, Health & Science	2	4	6
Faculty of CSESS	3	4	7
Faculty of CCI	1	3	4
ABC external consultants	1	0	1
Total	26	20	46

4.2 Data collection

The study gathered information on characteristics of ECU’s ABC implementation and the degree of ABC implementation success in ECU. Data was collected from two sources: the ABC project managers (preparers) of the ABC Project Management Group and the ABC Steering Committee as well as the project end users (users) at the University’s schools and centres. The data were collected during the month of June

2004. Data were collected via the administration of personal questionnaire mailed to and answered by each of the study's participants involved in preparing and/or using of the ABC in ECU. A mail-out questionnaire was therefore used to collect information from the participants for the purpose of analysis, testing of the study's fourteen hypotheses and answering the research questions.

Mail questionnaires, like other research methods however have its strengths and weaknesses (Cavana *et al.*, 2001). In this study, mail questionnaire was useful because the study covers relatively not a small number of participants to be reached in different ECU campuses in Western Australia as well as New South Wales as the external consultant was located in Sydney. The mailed questionnaires made it more convenient to participants of the study to respond. Respondents could complete the questionnaire at their own convenient time and place. However, because of the explanatory nature of this research, the questionnaire used in this study was relatively limited (i.e. using a frequency analysis of single items). This could have an effect on the resultant data of this limited questionnaire (Cavana *et al.*, 2001). Another weakness of mailed questionnaires in general could be the typical low return rates. Cavana *et al.* (2001) argues that with very low return rates the sample would be hardly representative of the population because those responding to the questionnaire may be different from the whole population they are supposed to represent. Low return rate problem, anyhow, is more likely to exist when respondents to the questionnaire are of limited education, which was not the case of the respondents of our study. Further, some techniques to improve the rate of response to our mail questionnaire were used: a participant information letter with a brief explanation of the study with a description of how to complete the questionnaire was included, the questionnaire was brief and clear, self-addressed stamped return envelopes were provided, and as an incentive to the participants to respond, a stamped card to be sent by the respondents separately if they wished the researchers to send them out a summary of the results whilst maintaining participant anonymity was enclosed. In the first two weeks, after the questionnaire was mailed on the 7th of June 2004, twenty one responses were received from the potential 46 respondents included in the projected sample. To encourage more responses, a reminder letter attached with the first letter and the questionnaire paper was re-mailed to potential participants (Appendix A). As a result at the end of July 2004 thirty eight participants responded.

Another weakness of the mail questionnaire data collection method is that any doubts the respondents may have could not be clarified. We attempted to overcome this disadvantage by providing the respondents with researchers full contact information as well as the contact information of an independent party if they have any doubts, concerns or complaints about the research project and wish to talk about it.

Personal questionnaire has been a common explanatory method used by prior researchers in their collection of data related to perceptions of ABC users and participants (McKeen *et al.*, 1994; McGowan and Klammer, 1997; McGowan, 1998; Shields, 1995).

4.3 The Questionnaire Design

Consistent with the prior research of ABC implementation, the questionnaire used in this study was designed as a simple and direct approach to measure the dependant and independent variables of the study (McGowan and Klammer, 1997; Shields, 1995). Each independent variable and the dependant variable were measured through the research participants' evaluation of a single statement. This *single measurement* approach could be viewed as less reliable measurement than a multiple measurement approach that uses more than one measure for each variable (Shields, 1995; Cavana *et al.*, 2001). As well as the case in Shields (1995) study, the lack of established measures of the studied variables and the exploratory nature of this study justify the satisfaction of the single measurement approach adopted in this research.

The subjective nature of the variables measured determined the nature of the questionnaire's statements respondents were asked to comment on. As participants' perceptions of the study's dependant and independent variables were to be measured, each question tapped the elements and the dimensions of the variable the question aimed to measure and the language used in these questions was appropriate to tap respondents' attitudes, feelings and perceptions. The study avoided length of the questions and guidelines were followed to ensure that the wording of the questionnaire

is appropriate to minimise bias. The purpose of each question was to measure one variable so that the study's variables were carefully considered and adequately measured and no superfluous questions were asked (Cavana *et al.*, 2001).

Closed-question was the type of the questions used in this study questionnaire. Users and preparers were asked to rate their perceptions of each of the single statements used to measure the study variables on interval scales of alternatives ranged from 0 to 5, Do not know, Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree. Closed questions could help the respondents to make quick choice among the set of alternative answers attached to each question. It also helped the researcher to categorise the data qualitatively and then to distinguish and to code the answers easily for the sake of subsequent analysis. Thus, the six interval alternative categorised answers attached to each question were carefully set to assure that these alternative categories were mutually exclusive and collectively exhaustive (Cavana *et al.*, 2001).

4.3.1 Dependant variable

A single item scale has been used to measure users and preparers perception of the likelihood of the ABC implementation to succeed in ECU. Participants were asked to rate their perception of the likelihood of the ABC implementation to succeed on a five-point scale that ranged from 0 = don't know, 1 = strongly disagree to 5 = strongly agree.

This crude measurement of success has been argued that it does not provide a specific definition of success (Shields, 1995). Shields argues that previous literature and discussions with ABC experts have not provided a consensus on a clear specific definition of success. Thus, this study has adopted Shields approach and has asked the participants to rate their perception of the degree of success ABC will likely achieve in ECU according to whatever each participant perceives the definition of success.

Similar statements were used in prior research where participants of these studies were asked in a similar manner to rate their perceptions on these statements. Shields (1995)

used in a direct manner two statements to measure ABC success, as the dependant variable of his study. The first statement was, "Overall, how successful do you believe the ABC initiative in your firm has been?" (Shields, 1995, p. 153). The second statement used by Shields to measure ABC success was "by asking whether a financial benefit had or had not been received from ABC" (Shields, 1995, p. 154). McGowan and Klammer (1997) measured "individuals' satisfaction with their respective ABCM implementation" (McGowan and Klammer 1997, p. 230) by the use of a single item scale. The single statement scale used in this study to measure the dependant variable has been used in a similar manner to the single item scale used in McGowan and Klammer (1997) and the first statement scale used in Shields (1995). The reason why this study has not use a second statement the same as the second statement used in Shields' study (i.e to ask the participants about the achievement of financial benefits from ABC implementation) is because ABC has not been so far completely implemented.

4.3.2 Independent variables

Participants were asked to rate their perceptions of the eleven independent variables of the study. Each participant was asked to rate his/her perception on each of the eleven single statement scales that been used to measure each of the independent variables. These independent variables were perception of top management involvement and support, the linkage to competitive strategies and continuous improvement programs, linkage to performance evaluation and compensation, training, ownership by non-accountants, adequate resources, consensus and clarity of the ABC objectives, timing, the organization culture, ABC project, and the on-going feedback of the implementation project.

Statements used in this study's questionnaire to measure the independent variables were selected to be brief, precise and clear to satisfy the requirement of our research study that is to measure users' and preparers' perceptions of these variables. Statements used in our questionnaire to measure the independent variables of this study are more likely to satisfy the requirement of our research that most of the statements used in this study's questionnaire have a precedent in similar statements in prior research as per the

literature reviewed. Statements used to measure the top management involvement and support, the linkage to competitive strategies and continuous improvement programs, linkage to performance evaluation and compensation, training, ownership by non-accountants, adequate resources, and consensus and clarity of the ABC objectives are similar to statements used in the study conducted by Shields (1995) and McGowan and Klammer (1997) (Appendix B).

Statements used in this study to measure the other four independent variables (i.e. timing, the organization culture, ABC project team, and the on-going feedback of the implementation project) have not been included in prior researches. With reference to the literature reviewed, these four independent variables have not been tested by prior studies via administration of personal questionnaire. The reviewed literature that have highlighted the importance of these four factors to the implementation success are theoretical discussion articles (Young, 1997), comparative case study articles (Thorne and Gurd, 1995; Roberts and Silvester, 1996; Anderson *et al.*, 2002), case study articles (Shanahan, 1995). Therefore, the four single statements that participants were asked to rate in this study to measure timing, the organization culture, ABC project team and the on going feedback of the implementation project have been formed by the researcher of this study to be as brief, precise and clear to satisfy the requirement of our research study that is to measure users' and preparers' perceptions of these four independent variables.

4.3.2.1 Perception of top management involvement and support

Participants have been asked to rate their perception of the university's top management involvement, commitment and support to the ABC implementation project. The statement used in this study's questionnaire is "Leaders (top management) demonstrate their own commitment and support to the ABC implementation project".

Similar statement has been used in the study conducted by McGowan and Klammer (1997) (Appendix B).

4.3.2.2 Perception of the linkage to competitive strategies and continuous improvement programs

Participants have been asked to rate their perception of the linkage of ABC system in the university to competitive strategies and continuous improvement programs. The statement used in this study's questionnaire is "the ABC initiative is linked to the university's competitive strategy and continuous improvement and quality initiatives".

Similar statements have been used in the study conducted by Shields (1995) (Appendix B).

4.3.2.3 Linkage to performance evaluation and compensation

Participants have been asked to rate their perception of the linkage of ABC system in the university to performance evaluation and compensation. The statement used in this study's questionnaire is "there is a strong linkage between the performance evaluation systems and the university's compensation plan and the ABC system".

Similar statements have been used in both of the studies conducted by Shields (1995) and McGowan and Klammer (1997) (Appendix B).

4.3.2.4 Training

Participants have been asked to rate their perception of the appropriateness of the received training and orientation related to the ABC implementation. The statement used in this study's questionnaire is "People in this university are receiving proper training and orientation concerning designing, implementing and using ABC".

The statement used has combined the contents of several statements used for the same purpose by both Shields (1995) and McGowan and Klammer (1997) (Appendix B).

4.3.2.5 Ownership by non-accountants

Participants have been asked to rate their perception of the ownership of the implementation project by all departments as well as the finance department. The statement used in this study's questionnaire is "the ownership of the project is by all the university departments and not only by the university finance department".

Shields (1995) has asked participants in his study to rate their perceptions of the degree of ABC ownership by the accounting department and their perceptions of the degree of ABC ownership by various operating departments (Appendix B).

4.3.2.6 Adequate resources

Participants have been asked to rate their perception of the adequacy of internal as well as external resources available for the implementation project. The statement used in this study's questionnaire is "the amounts of resources provided for ABC relative to the amounts of resources needed are adequate".

Similar statement has been used in the study conducted by Shields (1995) (Appendix B).

4.3.2.7 Consensus and clarity of the ABC objectives

Participants have been asked to rate their perception of the consensus on and the clarity of the ABC implementation project. The statement used in this study's questionnaire is "objectives of the ABC implementation process were clearly stated up front and there is consensus about these objectives".

Previous studies have used the concepts of clarity and consensus in similar statements in their questionnaires to the system participants (Shields, 1995; McGowan and Klammer, 1997) (Appendix B).

4.3.2.8 Timing

Participants have been asked to rate their perception of the timing issues related to the initiating, implementing and using ABC system. “Proper consideration has been paid to timing issues related to initiating, implementing, and using the system in the university” is the statement that has been used in the questionnaire of this study.

4.3.2.9 The organization culture

Participants have been asked to rate their perception of the university’s culture. The wording of the statement that has been used in this study’s questionnaire is “the university has the organizational culture that helps ABC implementation to succeed”.

4.3.2.10 ABC project team

Participants have been asked to rate their perception of the ABC project team. Participants have rated their perception of the statement “the university has employed the proper ABC project team”.

4.3.2.11 On-going feedback

Participants have been asked to rate their perception of the availability of on going feedback to top management and lower levels employees on the progress of the ABC implementation project. The statement participants were asked to rate their perception of was “there is an on going feedback of information on the progress of the ABC implementation project and on the results of the project directed to all levels in the university (i.e. top management and lower levels employees)”.

4.3.3 The general appearance of the questionnaire

Careful attention was paid to the mailed questionnaire paper to look as attractive and neat as reasonable to make the respondents’ task easier and to motivate them to respond to the questionnaire in a willing and enthusiastic manner (Cavana *et al.*, 2001).

Accordingly, the questionnaire was designed accompanied with an appropriate information letter addressed to the study participants.

4.3.3.1 The Questionnaire

The questionnaire was organized logically and neatly with appropriate sections and was sent to the study participants. The questionnaire has included twelve questions. Each single question was designed to measure one of the study's variables. An introduction section was included in the questionnaire that provides instructions on how to answer the questions included in the questionnaire without difficulty (Appendix A).

4.3.3.2 The Information Letter

The information letter was attached with the sent questionnaire paper. The information letter has identified the researcher and introduced the conducted ABC study, its stages, purposes and objectives to the respondents. The letter assured respondents of the participants' anonymity and the confidentiality of the information provided by them. The letter provided the respondents with contact details of the researchers as well as the contact details of an independent party in case of any doubt, query, concern or complaint the respondent may encounter and need to talk about (Appendix A).

4.3.3.2 The Reminder Letter

To encourage more responses, a reminder letter attached with copies of the information letter and the questionnaire paper was re-mailed to potential participants after two weeks from the day the questionnaire was sent (Appendix A).

4.4 Summary

Data was collected from thirty eight user and preparer participants representing the whole variety of the ECU areas via a mail-out questionnaire. The questionnaire's twelve questions were designed to measure the study's twelve variables. An information

letter was attached to the questionnaire and sent to participants. The information letter has identified the researchers and introduced the study. To improve the participant rate a reminder letter was sent to participants after two weeks of sending the questionnaire and the first letter.

CHAPTER 5: ANALYSIS AND DISCUSSION

5.0 Overview

This chapter presents an analysis of the data collected from the participants of this study. The chapter presents the statistical tests conducted and discusses the results of this analysis in an attempt to draw conclusions regarding the proposed hypotheses. Frequency distributions, means, standard deviations and Pearson correlations will be presented to generate descriptive statistics that provide general descriptions of the data. Pearson correlations and the t-test results will be used to test the study's hypotheses.

5.1 Describing the data

The study's questionnaire was sent to the forty six users and preparers selected sample consisted of twenty six participants identified by the study as preparers and twenty participants identified as users. Responses to the study's questionnaire were received from thirty eight individuals in total. The responses consisted of twenty three responses from preparer participants and fifteen responses from user participants.

Therefore, response rate of users was only 75%. Preparers' response rate was 88.5%.

5.1.1 Checking the reliability of the survey measures

The reliability of the importance and useableness of the study measures was tested by using Cronbach's alpha reliability coefficient. The study used Cronbach's alpha to

measure the inter-item reliability of the study's dependent and independent variables including the ROLE¹.

The closer the reliability coefficient (alpha) to 1, the better the reliability is. Alpha for the dependant variable and the independent variables is calculated as 0.7036. Thus, the results suggest that the internal consistency reliability of the measures used in this study can be considered to be acceptable (Cavana *et al.*, 2001).

5.1.2 Frequency distribution

This section describes the frequency distribution of the participants' role and perceptions of the dependant and the independent variables. The section includes a general frequency distribution description for all participants (both preparers and users), a frequency distribution description for the preparer participants in particular and a frequency distribution description for the user participants in particular as well.

5.1.2.1 Frequency distribution for Both Preparers and Users

Frequency distributions were obtained for the perceptions of all participants (preparers and users) (Table 2).

The frequencies distribution obtained for the dependent variable shows that the majority (63.2%) of user and preparer participants agreed that ABC is likely to succeed in ECU. Only 7.9 percent of participants disagreed about the likelihood of ABC to succeed in ECU. A percentage of 15.8% of the participants were neutral towards the SUCCESS variable. A percentage of 13.2% of the sample subjects of users and preparers were not able to rate their participants of the dependent variable.

Table 2 shows also the frequencies obtained for the independent variables. The majority of participants (76.3%) agreed on the top management involvement and support for the ABC project, while only 10.5 percent disagreed. A percentage of 10.5% had a neutral

¹ Cronbach's alpha is a measure of coefficient of reliability and consistency that tests how well a set of variables measures a single unidimensional dormant construct (UCLA Academic Technology Services, Stat Computing, SPSS FAQ. (n.d))

perception of the TOPMNGMT variable. A minority of 2.6 percent were not able to rate their perception of this independent variable.

Table 2 Frequency Distribution for All Participants

Distribution/ Variable	Do not Know	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
SUCCESS	13.2%	00.0%	7.9%	15.8%	55.3%	7.9%	100%
TOPMNGMT	2.6%	00.0%	10.5%	10.5%	57.9%	18.4%	100%
STRATEGY	7.9%	2.6%	2.6%	10.5%	52.6%	23.7%	100%
EVALUAT	28.9%	15.8%	31.6%	15.8%	7.9%	00.0%	100%
TRAINING	10.5%	2.6%	28.9%	18.4%	34.2%	5.3%	100%
OWNERSHP	2.6%	10.5%	21.1%	15.8%	42.1%	7.9%	100%
RESOURCE	42.1%	5.3%	5.3%	18.4%	28.9%	00.0%	100%
CLARITY	5.3%	10.5%	5.3%	13.2%	55.3%	10.5%	100%
TIMING	10.5%	5.3%	23.7%	23.7%	31.6%	5.3%	100%
CULTURE	7.9%	15.8%	26.3%	7.9%	36.8%	5.3%	100%
TEAM	31.6%	2.6%	00.0%	13.2%	36.8%	15.8%	100%
FEEDBACK	5.3%	2.6%	21.1%	13.2%	47.4%	10.5%	100%

The majority 76.3 percent of respondents agreed that ABC is linked to the organization’s competitive strategies and continuous improvement programs. Only the minority of 5.2 percent disagreed about the STRATEGY variable. A percentage of 10.5 percent were neutral towards this variable and 7.9 percent were unable to decide their perceptions of this independent variable.

For the linkage of ABC to performance evaluation and compensation plan the minority of 7.9 percent of the sample preparer and user subjects agreed about the existence of this variable. The highest percentage of 47.4% of the responses disagreed about the

existence of such linkage. A percentage of 15.8% of the respondents were neutral in regarding to EVALUAT variable and 28.9% did not know enough to rate their perceptions.

The highest frequency of responses (39.5%) agreed about the availability of proper training relative to the ABC implementation. A percentage of 31.5% disagreed about the availability of proper TRAINING. A percentage of 18.4% of the sample participants had a neutral perception of this variable. A percentage of 10.5% do not have the required knowledge to have a perception of the availability of proper training relative to the ABC implementation.

Half of participants (50.0%) agreed that the ownership of the ABC implementation project was owned by the finance department as well as other ECU departments. A percentage of 31.6% of respondents did not agree about the OWNERSHP variable. A percentage of 15.8% of participants had a neutral perception of this variable. The lowest percentage of respondents (2.6%) were not able to rate their perception.

A percentage of 28.9% of respondents agreed about the adequacy of internal as well as external resources available for the implementation project, while 10.6% disagreed. A percentage of 18.4% of respondents were neutral towards this variable. The largest number of participants (42.1%) were not able to rate their perception of the RESOURCE variable as a result of the lack of the required knowledge.

The majority (65.8%) of users and preparers participants agreed about the consensus on and the clarity of the ABC implementation project's objectives. A percentage of 15.8% of participants disagreed about the CLARITY variable. A percentage of 13.2% of the sample had a neutral perception of this independent variable. The lowest frequency of participants (5.3%) did not rate their perception of this variable.

The highest (36.9%) number of participants agreed that proper consideration was paid to timing issues related to initiating, implementing, and using the ABC system in the university. A percentage of 29% of respondents disagreed about this variable. A percentage of 23.7% of participants were neutral towards the TIMING variable and 10.5% of respondents had the "do not know" perception.

Whether the university has the organizational culture that helps ABC implementation to succeed, 42.1% of participants agreed, 42.1% of respondents disagreed, and 7.9% were neutral about CULTURE. 7.9% of participants did not rate their perceptions.

Most of participants (52.6%) agreed that the university employed the proper ABC project team. The minority of participants (2.6%) disagreed about the TEAM independent variable. A percentage of 13.2% were neutral and 31.6 percent of the user and preparer participants did not have the required knowledge in regarding to the appropriateness of the ABC project team.

Most of participants (57.9%) agreed about the availability of on going feedback to top management and lower levels employees on the progress of the ABC implementation project. A percentage of 23.7% of respondents did not agree about the availability of this variable. A percentage of 13.2% were neutral towards FEEDBACK and 5.3% declined to rate their perceptions.

We, in summary, have a general profile of the ECU employees, subjects of the sample of this research, as well as of their perceptions of the study's variables. Participants in general agreed rather than disagreed about the SUCCESS dependant variable as well as all the independent variables except for the EVALUAT independent variable where participants in general disagreed rather than agreed that there is a strong linkage between the performance evaluation systems and the university's compensation plan and the ABC system. There was a noticeable lack of knowledge among participants relative to the ABC project aspects that many participants could not develop a perception of the study variables especially for the RESOURCE, TEAM and EVALUAT independent variables.

5.1.2.2 Frequency distribution for Preparers

This section describes the frequency distribution obtained for the preparers' perceptions of the dependant and independent variables. Table 3 presents this particular distribution.

Preparers' perceptions of the dependant variable shows the majority of preparers (86.9%) agreed that ABC is likely to succeed in ECU. A percentage of 8.7% of preparer

respondents did not agree about this likelihood. A percentage of 4.3% were neutral towards this variable. None of the preparers participants of this study declined to rate his or her perception of the dependant variable.

The majority of the preparer participants (91.3%) agreed that ECU leaders (top management) demonstrate their own commitment and support to the ABC implementation project. A percentage of 8.7% had a neutral perception towards the TOPMNGMT variable. None of the preparers disagreed about the top management support, nor of them declined to rate his or her perception.

Table 3 Frequency Distribution for Preparers

Distribution/ Variable	Do not Know	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
SUCCESS	00.0%	00.0%	8.7%	4.3%	73.9%	13.0%	100.0%
TOPMNGMT	00.0%	00.0%	00.0%	8.7%	65.2%	26.1%	100.0%
STRATEGY	00.0%	00.0%	00.0%	00.0%	65.2%	34.8%	100.0%
EVALUAT	26.1%	17.4%	26.1%	21.7%	8.7%	00.0%	100.0%
TRAINING	8.7%	00.0%	17.4%	17.4%	47.8%	8.7%	100.0%
OWNERSHP	00.0%	4.3%	17.4%	13.0%	52.2%	13.0%	100.0%
RESOURCE	34.8%	8.7%	00.0%	21.7%	34.8%	00.0%	100.0%
CLARITY	4.3%	00.0%	00.0%	8.7%	69.6%	17.4%	100.0%
TIMING	8.7%	4.3%	8.7%	21.7%	47.8%	8.7%	100.0%
CULTURE	00.0%	4.3%	26.1%	13.0%	47.8%	8.7%	100.0%
TEAM	21.7%	4.3%	00.0%	8.7%	43.5%	21.7%	100.0%
FEEDBACK	00.0%	00.0%	21.7%	17.4%	47.8%	13.0%	100.0%

All preparers participated (100%) agreed about the existence of the linkage of the ABC project to the university's competitive strategy and continuous improvement and quality initiatives. No preparer rated his or her perception to the STRATEGY variable as "do not know", "strongly disagree", "disagree", or "neutral".

Only 8.7% of the sample preparer participants agreed about the linkage of the ABC project to the University's performance evaluation and compensation plan. The highest percentage (43.5%) of preparers' responses disagreed about the existence of such linkage. A percentage of 21.7% of the respondents were neutral in regarding to EVALUAT variable and 26.1% did not know enough about the variable to rate their perceptions.

Most of the preparer participants agreed about the availability of a proper training relative to the ABC system (56.5%). A percentage of 17.4% disagreed that proper training was received. A percentage of 17.4% were neutral in their perception of this independent variable. Only 8.7% do not have the knowledge enough to develop a perception of the TRAINING variable.

The majority (65.2%) of preparer participants' perceptions agreed that the ownership of the ABC project was by all of the university's departments and not only by the Finance Department. A percentage of 21.7% disagreed about the OWNERSHP variable. A percentage of 13.0% were neutral. None of the preparers declined to rate his or her perception of the OWNERSHP variable.

A percentage of 34.8% of preparer participants agreed about the adequacy of resources provided to the ABC project. A percentage of 8.7% of the preparers disagreed about the adequacy of the resources. A percentage of 21.7% were neutral in rating their perception of this independent variable. A percentage of 34.8% did not rate their perceptions of the RESOURCE variable.

For the clarity of and consensus about the objectives of the ABC project, the majority of preparer participants (87%) agreed about the variable. No preparer disagreed about the CLARITY. A percentage of 8.7% were neutral towards this independent variable. A percentage of 4.3 declined to rate his or her perception.

Most of preparer participants (56.5%) agreed that proper consideration was paid to the ABC timing issues. A percentage of 13% did not agree about the timing related to the ABC implementation in ECU. A percentage of 21.7 were neutral, while 8.7% of participant preparers declined to rate their perception of the TIMING variable.

Most of participant preparers (56.5%) agreed that the university has the organizational culture that helps ABC implementation to succeed. A percentage of 30.4% disagreed. A percentage of 13% were neutral. None of the preparers declined to rate his or her perception of the CULTURE variable.

The majority of preparer subjects of this study sample (65.2%) agreed that the university has employed the proper ABC project team. 4.3% of the preparers disagreed about the TEAM variable. 8.7% were neutral, while 21.7% did not rate their perception of this variable.

Preparer participants' perceptions of the FEEDBACK variable were agreed by 60.8% (the majority). A percentage of 21.7% disagreed about the availability of an on going feedback to top management and lower levels employees on the progress of the ABC implementation project. A percentage of 17.4% of preparer participants were neutral towards this variable. All preparer participants have the relative knowledge of the availability of the FEEDBACK variable to develop a perception of this variable.

It is clear that participant preparers were more in agreement than disagreement about the dependant variable as well as the independent variables except for the EVALUAT independent variable where preparer participants were more likely to disagree than to agree about the existence of this independent variable. It was also noticeable that a relatively high percentage of the participant preparers did not have enough knowledge about the adequacy of resources provided to the ABC project (RESOURCE). Lack of knowledge was also noticed in regarding to the appropriateness of the ABC project team (TEAM) as well as the linkage of the ABC project to the performance evaluation system and the compensation plan (EVALUAT). Such lack of knowledge did not enable those preparers to develop a perception related to these three independent variables.

5.1.2.3 Frequency distribution for users

Table 4 presents the frequency distribution of user participants' perceptions of the dependent and independent variables. This paragraph describes the results presented in Table 4.

Table 4 Frequency Distribution for Users

Distribution/ Variable	Do not Know	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
SUCCESS	33.3%	00.0%	6.7%	33.3%	26.7%	00.0%	100.0%
TOPMNGMT	6.7%	00.0%	6.7%	13.3%	46.7%	6.7%	100.0%
STRATEGY	20.0%	6.7%	6.7%	26.7%	33.3%	6.7%	100.0%
EVALUAT	33.3%	13.3%	40.0%	6.7%	6.7%	00.0%	100.0%
TRAINING	13.3%	6.7%	46.7%	20.0%	13.3%	00.0%	100.0%
OWNERSHP	6.7%	20.0%	26.7%	20.0%	26.7%	00.0%	100.0%
RESOURCE	53.3%	00.0%	13.3%	13.3%	20.0%	00.0%	100.0%
CLARITY	6.7%	26.7%	13.3%	20.0%	33.3%	00.0%	100.0%
TIMING	13.3%	6.7%	46.7%	26.7%	6.7%	00.0%	100.0%
CULTURE	20.0%	33.3%	26.7%	00.0%	20.0%	00.0%	100.0%
TEAM	46.7%	00.0%	00.0%	20.0%	26.7%	6.7%	100.0%
FEEDBACK	13.3%	6.7%	20.0%	6.7%	46.7%	6.7%	100.0%

A percentage of 26.7% of users' participants agree about the SUCCESS dependent variable. A percentage of 6.7% disagree. The greatest percentage of participant users (33.3%) rated their perception of the dependent variable as "neutral". A percentage of

33.3% of user subjects of the study sample did not have enough knowledge to decide their perception of the likelihood of ABC to succeed in ECU.

The greatest percentage of user participants (53.4%) agreed about TOPMNGMT independent variable. A percentage of 26.7% did not agree. A percentage of 13.3% were neutral towards this independent variable, while 6.7% did not know enough to rate their perception.

In regarding to the STRATEGY independent variable, the greatest percentage (40%) of user participants had the agree perceptions. A percentage of 13.4% did not agree about this variable. A percentage of 26.7% were neutral. A percentage of 20% did not know about the linkage of the ABC project to the University's competitive strategies and continuous improvement programs.

Only 6.7% of user participants agree that there is a strong linkage between the performance evaluation systems and the university's compensation plan and the ABC system. But, 53.3% did not agree. A percentage of 6.7% of the users had the "neutral" perceptions of this variable. However, 33.3% did not know enough about the EVALUAT variable to rate their perception.

While 13.3% of user participants agreed, 53.4% (the highest percentage) did not agree that people in the University are receiving proper training and orientation concerning designing, implementing and using ABC. A percentage of 20.0% had neutral perceptions of the TRAINING independent variable and 13.3 do not know enough about the TRAINING variable to develop perceptions.

A percentage of 26.7% of the user participants had rated their perception of the OWNERSHP variable as agrees. A percentage of 46.7% of users disagreed. A percentage of 20.0% were neutral about this variable. A percentage of 6.7% did not rate their perceptions.

A percentage of 20.0% of user participants agreed about the adequacy of resources. A percentage of 13.3% disagreed and 13.3% were neutral in their perception of this variable. The majority of user participants (53.3%) did not know whether the amounts

of resources provided for ABC relative to the amounts of resources needed are adequate. Therefore, the majority of user participants were not able to rate their perception of the RESOURCE variable.

A percentage of 33.3% of user participants agreed about the clarity of and the consensus on the objectives of the ABC project. A percentage of 40% did not agree. A percentage of 20% had neutral perceptions of CLARITY. A percentage of 6.7% did not know enough to rate their perception.

About the TIMING variable, only the minority of user participants (6.7%) agreed, while the majority (53.4%) disagreed. A percentage of 26.7 were neutral towards this independent variable. A percentage of 13.3% did not develop a perception of the variable because they do not have enough knowledge whether proper consideration has been paid to timing issues related to initiating, implementing, and using the ABC system in the University.

Whether the university has the organizational culture that helps ABC implementation to succeed, user participants by the majority (60%) did not agree. Only 20.0% agreed about the CULTURE variable, while the other 20% were not able to give their perception because they were lacked the relative knowledge.

A percentage of 33.4% agreed that the university has employed the proper ABC project team. The other 20.0% were neutral in their perception of the TEAM independent variable. The largest percentage (46.7%) of the users of the sample had no enough knowledge to develop a clear perception about appropriateness of the ABC project team.

The majority (53.4%) of the sample users agreed about the FEEDBACK independent variable. A percentage of 26.7% disagreed. A percentage of 6.7% were neutral in the way they perceive this independent variable. The other 13.3% did not know if there is an on going feedback of information on the progress of the ABC implementation project and on the results of the project directed to all levels in the University.

The frequency distribution obtained for user participants' perceptions shows that user participants were more likely to agree in their perceptions of some variables while disagree in their perceptions of others. User participants were more likely to agree than to disagree about the SUCCESS dependant variable and TOPMNGMT, STRATEGY, RESOURCE, and FEEDBACK. However, user participants were more likely to disagree than to agree about EVALUAT, TRAINING, OWNERSHP, CLARITY, TIMING, and CULTURE. There were a noticeable percentage of user participants who were short of the required knowledge of aspects of the ABC system related to the likelihood of success (SUCCESS), linkage to the competitive strategy and improvement initiatives (STRATEGY), linkage to performance evaluation and compensation (EVALUAT), the adequacy of resources (RESOURCE) and the appropriateness of the ABC project team (TEAM).

From the frequency distribution obtained, this section shows more likelihood of preparer participants to agree about the study variables than users. User participants showed more lack of knowledge of ABC aspects related to the study variables.

5.1.3 Central tendency and dispersion

Measures of the central tendency and dispersion for the interval-scaled dependent and independent variables were obtained. All variables were tapped on a five point scale from 1 = strongly disagree to 5 = strongly agree. "Do not know" responses were considered as no responses and were not considered in the calculations. This section will report the mean as a measure of central tendency and the range and the standard deviation as measures of dispersion and spread. Results of each measure will be presented first for all participants in general and then for each participant group in particular in a consequent manner.

5.1.3.1 Measures of central tendency and dispersion for all participants (i.e. preparers and users)

Descriptive measures are presented in Table 5 for all user and preparer participants.

Table 5 Descriptive Statistics for All Participants

Variable	Actual Range	Maen	Standard Deviation
Dependent Variable			
SUCCESS	2 - 5	3.7273	0.7613
Independent Variables			
TPMNGMT	2 - 5	3.8649	0.8551
STRATEGY	1 - 5	4.0000	0.8745
EVALUAT	1 - 4	2.2222	0.9337
TRAINING	1 - 5	3.1176	1.0376
OWNERSHP	1 - 5	3.1622	1.1906
RESOURCE	1 - 4	3.2273	0.9726
CLARITY	1 - 5	3.5278	1.1335
TIMING	1 - 5	3.0882	1.0551
CULTURE	1 - 5	2.8857	1.2781
TEAM	1 - 5	3.9231	0.8910
FEEDBACK	1 - 5	3.4444	1.0541
Dependent Variable			
Independent Variables			
1 = strongly disagree	1 = strongly disagree		
2 = disagree	2 = disagree		
3 = neutral	3 = neutral		
4 = Agree	4 = agree		
5 = strongly agree	5 = strongly agree		

From the results, it may be seen that the mean on the dependent variable SUCCESS was 3.7273 which indicates that perceptions of participants in general moderately agree about the likelihood of ABC to succeed in ECU. The range of participants' responses was from 2 to 5 which indicate that there were some who disagreed and some who strongly agreed about the likelihood of ABC success in ECU. However, the 0.76128

standard deviation of responses to this variable shows that most participants were much closed to the mean so that most respondents were likely to be neutral to highly agree in their perception of the ABC success likelihood.

The mean on the independent variable TPMNGMNT was 3.8649 which indicate that preparer and user participants were generally in agreement that top management demonstrate their own commitment and support to the ABC implementation project. The range of responses had the minimum of 2 which means that there were some participants who disagreed about this variable. The range maximum of 5 indicates that there were some participants who strongly disagreed. The standard deviation of 0.8551 indicates that most responses were closed to the mean which indicate that the majority of participants had neutral to highly agree perceptions of the top management involvement and support to the ABC project.

The mean of responses on the STRATEGY was 4.0 which indicate that respondents were generally agreed that the ABC initiative is linked to the University's competitive strategy and continuous improvement and quality initiatives. The range minimum of 1 indicates that there were some participants who strongly disagreed about this independent variable, while the range maximum of 5 indicates that there were other respondents who strongly agreed about that same variable. The 0.8745 standard deviation, anyhow, shows the majority of responses were close to the mean and ranged from neutral to highly agree.

The 2.2222 mean on perceptions of the independent variable EVALUAT indicates that participants were more likely in general to disagree that there is a strong linkage between the performance evaluation systems and the university's compensation plan and the ABC system. Responses ranged from 1 to 4 which indicate that there were some who strongly disagreed and some who agreed about this independent variable. The standard deviation of responses was 0.9337 which indicates that most respondents were ranged from highly disagree to neutral about the existence of a linkage between the ABC project and the University's performance evaluation and a University compensation plan.

The mean on perceptions of TRAINING was 3.1176. This indicates that participants in general were in the neutral status towards this independent variable. Perceptions ranged from 1 – 5, which tells that there were some participants who strongly disagreed and some who strongly agreed that people in this university are receiving proper training and orientation concerning designing, implementing and using ABC. The 1.0376 standard deviation indicates that the majority of respondents were ranged between disagree and agree perception categories.

The perceptions of participants on the OWNERSHIP independent variable had the mean of 3.1622. The mean indicates that the general perception of users and preparers was more likely neutral than agree. The range 1 – 5 shows that there were some strongly disagreeing perceptions as well as some strongly agreeing perceptions. The 1.1906 standard deviation indicates that the majority of participants were ranged in their perceptions between disagree to agree that the ownership of the project is by all the University departments and not only by the university Finance Department.

Participants had the mean of 3.2273 of their perceptions on the RESOURCE independent variable. The mean indicates that participants in general were more neutral than agree in their perception of this variable. The range from 1 – 4 indicates that there were some participants who strongly disagreed about this variable while there were others who agreed. The data of perceptions of this variable, with a standard deviation of 0.9726, indicates that most of perceptions were ranged between disagree and agree that the amounts of resources provided for ABC relative to the amounts of resources needed are adequate.

Perceptions of the CLARITY independent variable had a 3.5278 mean. The mean here indicates that participants were generally in agreement in their perceptions of this variable. The variable had a range of minimum 1 and maximum 5, which indicates that there were some strongly disagree perceptions as well as some other strongly agree perceptions. The 1.1335 standard deviation of the perceptions' data indicates that most participants were vary from moderately disagree to highly agree that objectives of the ABC implementation process were clearly stated up front and there is consensus about these objectives.

For the TIMING independent variable, the 3.0882 mean on participants' perceptions indicates that users and preparers were more likely to have neutral perceptions that proper consideration has been paid to timing issues related to initiating, implementing, and using the system in the university. Perception data were ranged between 1 and 5, which indicates that there were some participants who strongly disagreed and others who strongly agreed about the TIMING variable. The data of perceptions of TIMING had a standard deviation of 1.0551 means that most of preparer and user participants spread from disagree to agree about the TIMING issues relative to this variable.

Perceptions of preparer and user participants on the CULTURE independent variable had the mean of 2.8857, which indicates that participants were generally more likely to be neutral than to disagree that the University has the organizational culture that helps ABC implementation to succeed. The 1 – 5 range indicates that there were some prepares and users who were strongly disagree as well as some others who were strongly agree that the University has the required culture. Data of perceptions of this variable had the standard deviation of 1.2781, which tells that data had a good spread along the perceptions interval scale. The standard deviation indicates that most of the participants were spread in there perception from disagree to agree about the CULTURE variable.

The 3.9231 mean on perceptions of preparer and user subjects of the study sample of the independent variable TEAM indicates that perceptions in general were agree that the University has employed the proper ABC project team. Perceptions data ranged from 1 to 5, which indicates that there were some user and preparer participants who strongly disagreed, and some others were strongly agreed about the appropriateness of the team employed by the University to implement the ABC project. Perception data on this variable had the standard deviation of 0.8910. The standard deviation here indicates that most of participants' perceptions were close to the mean in a way that most of perceptions spread from neutral to highly agree.

Participants' perceptions of the FEEDBACK independent variable had the mean of 3.4444, which indicates that participants generally were moderately agree that there is an on going feedback of information on the progress of the ABC implementation project and on the results of the project directed to all levels in the University. Participants'

perceptions had a 1 – 5 range, which indicates that there were some participants who strongly disagreed and some others who strongly agreed about the FEEDBACK independent variable. The 1.0541 standard deviation of perceptions indicates that the majority of the participants' data were spread between the moderately disagree and the highly agree categories.

The central tendency obtained for all user and preparer participants shows that participants were generally neutral to agree for the SUCCESS dependent variable as well as for the all the independent variables except for the EVALUAT and the CULTURE independent variables. Participants' perceptions of the EVALUAT and the CULTURE variables were generally disagree to neutral. The lowest ranges reported were 1 – 4 and 2 – 5 for four of the variables, while the highest range was 1 – 5 for the other variables, which shows that responses spread sufficiently over the questionnaire interval scale of each question. This also indicates that the survey questions were properly worded and respondents did understand the purpose of each question (Cavana *et al.*, 2001). The lowest standard deviation reported was 0.7613 and the highest was 1.2781. The standard deviation indicates that most of responses were close somehow to the mean for most of the variables. Despite that, the spread and variety measures still indicate the sufficient variety of responses over each of the tested variables as the spread and variety of the questionnaire responses does not indicate bias of the user and preparer respondents (i.e. tend to answer similarly to all the questions) (Cavana *et al.*, 2001).

5.1.3.2 Measures of central tendency and dispersion for preparer participants

Table 6 presents the descriptive statistics obtained for perceptions of the preparer participants rated on the study's interval scale.

The 3.9130 mean on perceptions of preparers on the SUCCESS dependent variable indicates that preparers in general were almost in agreement that the ABC project is likely to succeed in ECU. Perceptions ranged from 2 – 5, which indicates that there were some preparers who disagreed about the dependent variable and others who strongly agreed. The 0.7332 standard deviation of the data indicates that most of preparers' responses were close to the agree category spreading from neutral to highly agree.

Table 6 Descriptive Statistics for Preparers

Variable	Actual Range	Mean	Standard Deviation
Dependent Variable			
SUCCESS	2 - 5	3.9130	0.7332
Independent Variables			
TPMNGMT	3 - 5	4.1739	0.5762
STRATEGY	4 - 5	4.3478	0.4870
EVALUAT	1 - 4	2.2941	0.9852
TRAINING	2 - 5	3.5238	0.9284
OWNERSHP	1 - 5	3.5217	1.0817
RESOURCE	1 - 4	3.2667	1.0328
CLARITY	3 - 5	4.0909	0.5264
TIMING	1 - 5	3.5238	0.9808
CULTURE	1 - 5	3.3043	1.1051
TEAM	1 - 5	4.0000	0.9701
FEEDBACK	2 - 5	3.5217	0.9941

Dependent Variable	Independent Variables
1 = strongly disagree	1 = strongly disagree
2 = disagree	2 = disagree
3 = neutral	3 = neutral
4 = Agree	4 = agree
5 = strongly agree	5 = strongly agree

The 4.1739 mean on the data related to preparers' perceptions of the TPMNGMT independent variable indicates that preparer participants generally were agree about this variable. The 3-5 range indicates that there were some preparers who were neutral towards this variable, while there were others who strongly disagreed. The range also indicates that there was no preparer participant who had a negative perception in

regarding to this variable (i.e. disagree or strongly disagree). The data standard deviation for this variable was 0.5762, which indicates that the majority of preparer participants were very close around the agree perception.

The perceptions of preparer participants on the STRATEGY independent variable had the mean of 4.3478. The mean indicates that the general perception of preparer participants was agreed about this variable. The 4 - 5 range shows that Preparers' perceptions matched only the "agree" and "strongly agree" perception categories. The 0.4870 standard deviation indicates that the majority of participants were ranged in their perceptions of this variable between almost agree to highly agree.

The 2.2941 mean on preparers' perceptions of the independent variable EVALUAT indicates that preparer participants in general were more likely to disagree that there is a strong linkage between the performance evaluation systems and the University's compensation plan and the ABC system. Responses ranged from 1 to 4 which indicate that there were some preparers who strongly disagreed and some who agreed about this independent variable. The standard deviation of responses was 0.9852 which indicates that most preparer respondents were ranged from highly disagree to slightly agree about the existence of a linkage between the ABC project and the University's performance evaluation and a University compensation plan.

Preparers' perceptions of the TRAINING independent variable had a mean of 3.5238, which indicates that participants generally were in moderate agreement that people in this university are receiving proper training and orientation concerning designing, implementing and using ABC. Preparers' perceptions had a 2 – 5 range, which shows that there were some preparer participants who disagreed and some others who strongly agreed about the TRAINING independent variable. The 0.9284 standard deviation of preparer perceptions indicates that that the majority of data were ranged between the moderately disagree and the highly agree categories about this independent variable.

The OWNERSHP independent variable had preparer perceptions with a 3.5217 mean. The mean here indicates that preparer participants were moderately agreed in their perceptions of this variable. The variable had a range of minimum 1 and maximum 5, which indicates that there were some strongly disagree perceptions as well as some

other strongly agree perceptions. The 1.0817 standard deviation of the preparers' data indicates that most preparer participants were vary from moderately disagree to highly agree that the ownership of the project is by all the University departments and not only by the University's Finance Department.

Preparers group had the mean of 3.2667 on their perceptions on the RESOURCE independent variable. The mean indicates that participants in general were more likely neutral than agree that the amounts of resources provided for ABC relative to the amounts of resources needed are adequate. The range from 1 – 4 indicates that there were some preparer participants who strongly disagreed about this variable while there were others who agreed. The data of perceptions of this variable, with a standard deviation of 1.0328 indicates that most of preparers' perceptions were spread between disagree and agree in their perception of this variable.

The mean of responses on the CLARITY variable was 4.0909 indicates that preparer respondents were generally agreed that objectives of the ABC implementation process were clearly stated up front and there is consensus about these objectives. The range was 3-5 indicating that there were some preparers who were neutral towards this variable, while there were others who strongly disagreed. The range also indicates that there was no preparer participant who had a negative perception in regarding to this variable (i.e. disagree or strongly disagree). The 0.5264 standard deviation shows the majority of responses were close to the mean and ranged from moderately agree to highly agree.

The TIMING independent variable had perceptions with a 3.5238 mean. The mean here indicates that preparer participants were generally moderately agreed in their perceptions of this variable. The variable had a range of minimum 1 and maximum 5, which indicates that there were some strongly disagree preparer perceptions as well as some other strongly agree preparer perceptions of TIMING. The 0.9808 standard deviation of the preparer perceptions' data indicates that most preparer participants were varying from moderately disagree to highly agree that proper consideration has been paid to timing issues related to initiating, implementing, and using the system in the University.

The perceptions of preparer participants on the CULTURE independent variable had the mean of 3.3043. The mean indicates that the general perception of preparers about this variable was more likely neutral than agree. The 1-5 range shows that there were some strongly disagreeing perceptions as well as some strongly agreeing perceptions among the preparers group. The 1.1051 standard deviation indicates that the majority of preparer participants were ranged in their perceptions between disagree to agree that the University has the organizational culture that helps ABC implementation to succeed.

The mean of responses on TEAM was 4.0000 which indicate that preparer respondents were generally agreed that the University has employed the proper ABC project team. The range minimum of 1 indicates that among the preparer group there were some who strongly disagreed about the TEAM variable, while the range maximum of 5 indicates that there were other preparer respondents who strongly agreed about that same variable. The 0.9701 standard deviation shows the majority of preparer responses were ranged from moderately disagree to highly agree.

Preparers' perceptions of the FEEDBACK independent variable had a mean of 3.5217. The mean here indicates that preparer participants were generally moderately agreed in their perceptions of this variable. The variable had a range of minimum 2 and maximum 5, which indicates that there were some disagree perceptions as well as some other strongly agree perceptions among participants from the preparer group. The 0.9941 standard deviation of the perceptions' data indicates that most participants were varied from moderately disagree to highly agree that there is an on going feedback of information on the progress of the ABC implementation project and on the results of the project directed to all levels in the University.

Thus, an agreeing tendency could be concluded from the preparers' responses. The Mean obtained for preparer participants shows the tendency to agree for the dependent variable as well as for the all the independent variables except for the EVALUAT independent variable. Preparers' perceptions of the EVALUAT variable indicated moderate disagreement in general. The lowest range reported was 3-5 for TPMNGMT and CLARITY, while the highest range was 1-5 for other four variables, which shows that preparers' responses spread sufficiently over the questionnaire interval scale of each question. This also indicates that the survey questions were properly worded and

respondents did understand the purpose of each question. The lowest standard deviation reported was 0.4924 and the highest was 1.1051. The standard deviation indicates that most of responses were close to the mean for most of the variables. However, the spread and variety measures still do not indicate bias of the preparer respondents (i.e. tend to answer similarly to all the questions) as the range and the standard deviation, taken in consideration together, still indicate a sufficient variety of responses over each of the tested variables (Cavana *et al.*, 2001).

5.1.3.3 Measures of central tendency and dispersion for user participants

Measures of central tendency and dispersion were also obtained for perceptions' data of participants of the users group. The descriptive statistics obtained are presented in Table 7.

User group had the mean of 3.3000 on their perceptions on the dependent variable SUCCESS. The mean indicates that user participants generally were more neutral than agree that the ABC project is likely to succeed in ECU. The range from 2– 4 indicates that there were some user participants who disagreed, some others who agreed, while the rest of user participants were neutral in there perceptions of the ABC success likelihood. The data of perceptions of this variable, with a standard deviation of 0.6750 indicates that most of users' perceptions were ranged between moderately disagree and agree in their perception of this variable.

Perceptions of user participants on the TPMNGMT independent variable had the mean of 3.3571. The mean indicates that the general perception of users about this variable was more neutral than agree. The 2-5 range shows that there were some of disagree perceptions as well as some strongly agreeing perceptions among the users group. The 1.0082 standard deviation indicates that the majority of user participants were ranged in their perceptions between disagrees to agree that top management demonstrate their own commitment and support to the ABC implementation project.

Table 7 Descriptive Statistics for Users

Variable	Actual Range	Mean	Standard Deviation	.
Dependent Variable				
SUCCESS	2 - 4	3.3000	0.6750	
Independent Variables				
TOPMNGMT	2 - 5	3.3571	1.0082	
STRATEGY	1 - 5	3.3333	1.0731	
EVALUAT	1 - 4	2.1000	0.8756	
TRAINING	1 - 4	2.4615	0.8771	
OWNERSHP	1 - 4	2.5714	1.1579	
RESOURCE	2 - 4	3.1429	0.8997	
CLARITY	1 - 4	2.6429	1.2775	
TIMING	1 - 4	2.3846	0.7680	
CULTURE	1 - 4	2.0833	1.2401	
TEAM	3 - 5	3.7500	0.7071	
FEEDBACK	1 - 5	3.3077	1.1821	
Dependent Variable				
Independent Variables				
1 = strongly disagree	1 = strongly disagree			
2 = disagree	2 = disagree			
3 = neutral	3 = neutral			
4 = Agree	4 = agree			
5 = strongly agree	5 = strongly agree			

Perceptions of user participants on the STRATEGY independent variable had the mean of 3.3333. The mean here indicates that user participants in general were neutral about this variable. The 1-5 range shows that there were some strongly disagreeing perceptions as well as some strongly agreeing perceptions among the users group. The 1.0731 standard deviation indicates that most of users' responses were ranged in their perceptions between disagree to agree that the ABC initiative is linked to the University's competitive strategy and continuous improvement and quality initiatives.

The 2.1000 mean on users' perceptions of the independent variable EVALUAT indicates that user participants in general disagreed that there is a strong linkage between the performance evaluation systems and the University's compensation plan and the ABC system. Responses ranged from 1 to 4 which indicate that there were some users who strongly disagreed and some who agreed about this independent variable. The standard deviation of responses was 0.8756 which indicates that most user respondents were spread from highly disagree to neutral about the existence of this independent variable.

Perceptions of user participants on the TRAINING independent variable had the mean of 2.4615, which indicates that user participants in general were moderately disagreeing that people in this university are receiving proper training and orientation concerning designing, implementing and using ABC. The 1-4 range indicates that there were some users who strongly disagreed as well as some others who agreed that the University has provided the proper training. Data of users' perceptions of this variable had the standard deviation of 0.8771, which tells that data had a close spread around the mean along the perceptions interval scale. The standard deviation indicates that most participants of the users group were ranged in there perception from disagree to neutral about the TRAINING variable.

The 2.5714 mean on perceptions of the independent variable OWNERSHP indicates that participants were in moderate disagreement that the ownership of the ABC project is by all the University departments and not only by the university finance department. Responses ranged from 1 to 4 which indicate that there were some who strongly disagreed and some who agreed about this independent variable. The standard deviation of responses was 1.1579 which indicates that most respondents were ranged from highly disagree to moderately agree about the existence of a linkage between the ABC project and the University's performance evaluation and a University compensation plan.

User participants' perceptions of the RESOURCE independent variable had the mean of 3.1429, which indicates that users generally were neutral in their perceptions of the amounts of resources provided for ABC are adequate relative to the amounts of resources needed by the project. Users' perceptions had a 2-4 range, which shows that

there were some user participants who disagreed and some others who agreed, while the rest were neutral towards the RESOURCE independent variable. The 0.8997 standard deviation of perceptions points to the fact that the majority of perceptions was close to the mean and were spread between the moderately disagree and the agree categories.

Perceptions of user participants on the CLARITY independent variable had the mean of 2.6429, which shows that objectives of the ABC implementation process were clearly stated up front and there is consensus about these objectives. The 1-4 range indicates that there were some users who were strongly disagree as well as some others who were agree about this independent variable. Data of users' perceptions of this variable had a standard deviation of 1.2775, which suggests that the data had a good spread along the perceptions interval scale. The standard deviation indicates that most of the user participants' perception ranged from highly disagree to agree about the CLARITY variable.

The 2.3846 mean on users' perceptions of the independent variable TIMING indicates that user participants in general were more likely to disagree that proper consideration has been paid to timing issues related to initiating, implementing, and using the system in the university. Responses ranged from 1 to 4 which indicate that there were some users who strongly disagreed and some who agreed about this independent variable. The standard deviation of responses was 0.7680 which indicates that most user respondents were ranged from highly disagree to neutral about the TIMING variable.

The mean of responses on CULTURE was 2.0833 which indicate that user respondents were generally disagreed that the University has the organizational culture that helps ABC implementation to succeed. The range minimum of 1 indicates that among the users group there were some who strongly disagreed about the CULTURE variable, while the range maximum of 4 indicates that there were other user respondents who agreed about the variable. The 1.2401 standard deviation, which shows the majority of users' responses were ranged from strongly disagree to neutral.

The mean on the independent variable TEAM was 3.7500 which indicates that participants of the users group were in moderate agreement that the University has employed the proper ABC project team. The 3-5 range of responses means that all user

participants had the agree tendency towards this variable. The standard deviation of 0.7071 points that most users' responses were closed to the mean which indicate that the majority of participants had neutral to highly agree about the appropriateness of the project team.

The FEEDBACK independent variable had users' perceptions with a 3.3077 mean. The mean here indicates that user participants were more likely neutral in their perceptions of this variable. The variable had a range of minimum 1 and maximum 5, which indicates that there were some strongly disagree user perceptions as well as some other strongly agree user perceptions of the FEEDBACK. The 1.1821 standard deviation of the user perceptions' data indicates that most user participants were varying from disagree to highly agree that there is an on going feedback of information on the progress of the ABC implementation project and on the results of the project directed to all levels in the university.

Almost a disagreeing likelihood could be concluded from the descriptive statistics obtained for users' responses. The mean obtained for user participants shows the tendency to disagree for the six of the independent variables. Users were more likely neutral towards the dependant variables and the other independent variables except for the TEAM independent variable. Users' perceptions of the TEAM variable were moderately agreeing in general. The lowest ranges reported were 2–4 and 3–5 for three of the variables, while the highest range was 1–5 for the FEEDBACK and the STRATEGY independent variables. The range still shows that users' responses spread sufficiently over the questionnaire scale for each variable. This could indicate that the survey questions were properly worded and users did understand the purpose of each question (Cavana *et al.*, 2001). The lowest standard deviation reported was 0.6750 and the highest was 1.2775. The standard deviation points that most of users' responses were close to the mean for many of the variables. However, the spread and variety measures, taken in consideration together, still do not indicate bias of the user respondents that they tended to answer similarly to all the questions. The range and the standard deviation, still indicate a sufficient variety of responses over each of the tested variables (Cavana *et al.*, 2001).

Central tendency and dispersion statistics has been obtained for perceptions of the tested variables of all participants in general and then for perceptions of each participant group (users and preparers) in particular. The means as measures of central tendency obtained indicate that perceptions of all participants (i.e. users and preparers) had a moderate agreeing tendency about the likelihood of ABC to succeed in the University and had a general agreeing tendency about most of the independent variables. Measures of central tendency obtained for each of the participants group separately indicate that preparers had a general agreeing tendency about the likelihood of ABC to succeed as well as about most of the study's independent variables. Users had a general neutral tendency in their perceptions of the likelihood of ABC to succeed in the university but they had a general disagreeing tendency of most of the study's independent variables. Measures of dispersion shows that participants in general as well as each of the users and preparers groups in particular, had responses of good spread and variety over the questionnaire interval scale for each of the study variables.

5.1.4 Pearson Correlation Matrix²

This section will examine the correlation of all the variables with each other and detect whether some of these correlations are very high to the extent that we might have to question if the highly correlated variables are two distinct and different variables, and undermine the validity of the study variables measures. This section will first discuss the correlation matrix for the data of all respondents in general. Then the correlation matrix of the data of each participant group will be discussed independently.

5.1.4.1 Pearson correlation matrix for all participants (i.e. preparers and users)

Table 8 contains a Pearson correlation matrix for all of the variables in regarding to responses given by all participants (i.e. users and preparers).

The correlation matrix of perceptions of all participants of the study variables does not include any high correlation between any two variables that we might suggest the presence of multicollinearity. All correlations were less than $r = 0.75$. (Cavana *et al*

² A Pearson correlation indicates the directions, significance and strength of the *bivariate* relationships of variables when the study uses interval or ratio variables (Cavana *et al.*, 2001).

2001).

5.1.4.2 Pearson correlation matrix for preparer participants

Table 9 contains a Pearson correlation matrix for all of the variables in regarding to responses given by preparers.

There were no high correlations detected in the Pearson correlation matrix for preparers that might undermine the validity of the measures and suggest multicollinearity, as all correlations were less than 0.75 (Cavana *et al* 2001).

5.1.4.3 Pearson correlation matrix for user participants

Table 10 contains a Pearson correlation matrix for all of the variables in regarding to responses given by users.

There were no high correlations detected in the Pearson correlation matrix for users perceptions of the study's variables that might undermine the validity of the measures and suggest multicollinearity, as all correlations were less than 0.75 (Cavana *et al* 2001).

Thus the Pearson correlation matrixes obtained for all participants in general and for each of the two participants groups do not indicate multicollinearity nor undermine the validity of the measures used to test the study variables.

Table 8 Pearson Correlation Matrix (Preparers and Users)

Variable													
No.	Variable Name	1	2	3	4	5	6	7	8	9	10	11	12
1	SUCCESS	1	0.475**	0.510**	0.137	0.254	0.418**	0.254	0.103	0.156	0.261	-0.016	0.011
2	TOPMNGMT	0.475**	1	0.090	0.063	0.436**	0.322*	0.492**	0.142	0.312*	0.461**	0.105	0.001
3	STRATEGY	0.510**	0.090	1	0.217	0.199	0.392*	0.000	0.435**	0.334*	0.347*	-0.039	-0.071
4	EVALUAT	0.137	0.063	0.217	1	0.006	0.063	0.341	0.091	0.206	0.221	0.018	-0.098
5	TRAINING	0.254	0.436**	0.199	0.006	1	0.470**	-0.089	0.380*	0.378*	0.081	0.447*	0.454**
6	OWNERSHP	0.418**	0.322*	0.392**	0.063	0.470**	1	0.209	0.493**	0.311*	0.156	0.134	0.159
7	RESOURCE	0.254	0.492**	0.000	0.341	-0.089	0.209	1	0.069	0.185	0.121	-0.337	-0.399*
8	CLARITY	0.103	0.142	0.435**	0.091	0.380*	0.493**	0.069	1	0.380*	0.115	0.135	-0.061
9	TIMING	0.156	0.312*	0.334*	0.206	0.378*	0.311*	0.185	0.380*	1	0.353*	0.526**	0.518**
10	CULTURE	0.261	0.461**	0.347*	0.221	0.081	0.156	0.121	0.115	0.353*	1	-0.239	-0.082
11	TEAM	-0.016	0.105	-0.039	0.018	0.447*	0.134	-0.337	0.135	0.526**	-0.239	1	0.524**
12	FEEDBACK	0.011	0.001	-0.071	-0.098	0.454**	0.159	-0.399*	-0.061	0.518**	-0.082	0.524**	1

* Correlation is significant at the 0.05 level (1-tailed).

** Correlation is significant at the 0.01 level (1-tailed).

Table 9 Pearson Correlation Matrix (Preparers)

Variable No.	Variable Name	1	2	3	4	5	6	7	8	9	10	11	12	.
1	SUCCESS	1	0.360*	0.343	0.044	0.284	0.346	0.191	-0.219	-0.063	-0.134	0.000	0.252	
2	TOPMNGMT	0.360*	1	0.261	0.211	0.260	0.358*	0.575*	-0.056	0.416*	0.127	0.294	0.311	
3	STRATEGY	0.343	0.261	1	-0.132	0.260	0.158	-0.047	-0.317	-0.176	-0.037	-0.121	0.078	
4	EVALUAT	0.044	0.211	-0.132	1	-0.040	0.230	0.430	-0.106	0.336	0.227	0.127	-0.079	
5	TRAINING	0.284	0.260	0.260	-0.040	1	0.386*	-0.341	0.295	0.233	-0.326	0.580**	0.393*	
6	OWNERSHP	0.346	0.358*	0.158	0.230	0.386*	1	0.020	0.156	0.014	-0.215	0.051	0.369*	
7	RESOURCE	0.191	0.575*	-0.047	0.430	-0.341	0.020	1	-0.222	0.179	0.102	-0.381	-0.355	
8	CLARITY	-0.219	-0.056	-0.317	-0.106	0.295	0.156	-0.222	1	0.185	-0.206	0.236	0.077	
9	TIMING	-0.063	0.416*	-0.176	0.336	0.233	-0.014	0.179	0.185	1	0.140	0.585**	0.540**	
10	CULTURE	-0.134	0.127	-0.037	0.227	-0.0326	-0.215	0.102	-0.206	0.140	1	-0.181	0.014	
11	TEAM	0.000	0.294	-0.121	0.127	0.580**	0.051	-0.381	0.236	0.585**	-0.181	1	0.496*	
12	FEEDBACK	0.252	0.311	0.078	-0.079	0.393*	0.369*	-0.355	-0.077	0.540**	0.014	0.496*	1	

* Correlation is significant at the 0.05 level (1-tailed).

** Correlation is significant at the 0.01 level (1-tailed).

Table 10 Pearson Correlation Matrix (Users)

Variable													
No.	Variable Name	1	2	3	4	5	6	7	8	9	10	11	12
1	SUCCESS	1	0.440	0.626*	0.315	-0.342	0.295	0.535	-0.144	0.068	0.772*	-0.228	-0.639*
2	TOPMNGMT	0.440	1	-0.408	-0.207	0.355	0.009	0.445	-0.288	-0.338	0.566*	-0.378	-0.364
3	STRATEGY	0.626*	-0.408	1	0.712*	-0.404	0.290	0.123	0.272	0.417	0.390	-0.687	-0.401
4	EVALUAT	0.315	-0.207	0.712*	1	-0.074	-0.361	0.000	-0.018	-0.207	0.172	-0.730*	-0.207
5	TRAINING	-0.342	0.355	-0.404	-0.074	1	0.245	0.271	-0.170	-0.038	0.078	0.055	0.436
6	OWNERSHP	0.295	0.009	0.290	-0.361	0.245	1	0.713*	0.480*	0.462	0.409	0.314	-0.183
7	RESOURCE	0.535	0.445	0.123	0.000	0.271	0.713*	1	0.354	0.271	0.323	-0.158	-0.664
8	CLARITY	-0.144	-0.288	0.272	-0.018	-0.170	0.480*	0.354	1	-0.100	-0.217	-0.169	-0.382
9	TIMING	0.068	-0.338	0.417	-0.207	-0.038	0.462	0.271	-0.100	1	0.204	0.267	0.422
10	CULTURE	0.772*	0.566*	0.390	0.172	0.078	0.409	0.323	-0.217	0.204	1	-0.609	-0.442
11	TEAM	-0.228	-0.378	-0.687	-0.730*	0.055	0.314	-0.158	-0.169	0.267	-0.609	1	0.596
12	FEEDBACK	-0.639*	-0.364	-0.401	-0.207	0.436	-0.183	-0.664	-0.382	0.422	-0.442	0.596	1

* Correlation is significant at the 0.05 level (1-tailed).

** Correlation is significant at the 0.01 level (1-tailed).

5.2 Hypotheses Testing

As stated in Chapter 3, fourteen hypotheses were generated for this study. Pearson correlation was used to test H1 – H11. Multiple regression analysis was used to test H12 – H13. T-test of the two participant groups' means difference and Pearson correlation were used to test H14.

Table 11 show results of Pearson correlations of the dependant variable SUCCESS with the eleven independent variables.

5.2.1 Testing Hypothesis 1:

Hypothesis 1 was developed to test whether users and preparers perception of the ABC implementation success is positively correlated with their perception of top management involvement and support.

By using Pearson correlation, Table 11 sets the result of testing the correlation of the dependant variable SUCEESS with the independent variable TOPMNGMT. Table 13 tests also the significance of this correlation. Table 13 confirms that there is a positively significant correlation ($r = 0.475$) between the two variables with the accepted significant level of 0.003 ($p < 0.01$).

The result presented in Table 11 therefore, are consistent with the study Hypothesis 1.

5.2.2 Testing Hypothesis 2:

The second prediction of this study, Hypothesis 2, was developed to test whether users and preparers perception of the ABC implementation success is positively correlated with their perception of linkage of the ABC system to competitive strategies and continuous improvement programs.

By using Pearson correlation, Table 11 sets the result of testing the correlation of the dependant variable SUCEESS with the independent variable STRATEGY. Table 13

tests also the significance of this correlation. Table 13 confirms that there is a positively significant correlation ($r = 0.510$) between the two variables with the accepted significant level of 0.002 ($p < 0.01$).

The result presented in Table 11, therefore, is consistent with the study Hypothesis 2.

5.2.3 Testing Hypothesis 3:

Hypothesis 3 of this study was developed to test whether users and preparers perception of the ABC implementation success is positively correlated with their perception of linkage of the ABC system to performance evaluation and compensation plan in the University.

By using Pearson correlation, Table 11 sets the result of testing the correlation, and the significance of the correlation, of the dependant variable SUCEESS with the independent variable EVALUAT. Table 11 confirms that there is no significant correlation ($r = 0.137$) within any accepted significant level between the two variables ($p = 0.257$).

Thus, the result presented in Table 11 is inconsistent with the study Hypothesis 3.

5.2.4 Testing Hypothesis 4:

Hypothesis 4 of this study was developed to test whether users and preparers perception of the ABC implementation success is positively correlated with their perception of the training provided to employees at all levels concerning designing, implementing and using of the ABC system.

By using Pearson correlation, Table 11 sets the result of testing the correlation, and the significance of the correlation, of the dependant variable SUCEESS with the independent variable TRAINING. Table 11 confirms that there is a significant correlation ($r = 0.254$) with 0.092 accepted significant level between the two variables ($p < 0.10$).

Thus, the result presented in Table 11 is consistent with the study Hypothesis 4.

5.2.5 Testing Hypothesis 5:

Hypothesis 5 of this study was developed to test whether users and preparers perception of the ABC implementation success is positively correlated with their perception of the ownership of the ABC project by non accountants at all departments of the University as well as by accountants in the Finance Department.

By using Pearson correlation, Table 11 sets the result of testing the correlation, and the significance of the correlation, of the dependant variable SUCEESS with the independent variable OWNERSHP. Table 11 does confirm that there is a significant correlation ($r = 0.418$) at the accepted significant level of 0.008 between the two variables ($p < 0.01$).

Thus, the result presented in Table 11 is consistent with the study Hypothesis 5.

5.2.6 Testing Hypothesis 6:

Hypothesis 6 of this study was developed to test whether users and preparers perception of the ABC implementation success is positively correlated with their perception of the adequacy of the amounts of resources provided for the ABC implementation relative to the actual amounts needed.

By using Pearson correlation, Table 11 sets the result of testing the correlation, and the significance of the correlation, of the dependant variable SUCEESS with the independent variable RESOURCE. Table 11 does not confirm that there is a significant correlation ($r = 0.254$) within an accepted significant level between the two variables ($p > 0.10$).

Thus, the result presented in Table 11 is inconsistent with the study Hypothesis 6.

Table 11 Pearson Correlation (Preparers and Users)
Independent Variable = SUCCESS

Hyp. No.	Independent Variable	Correlation	Sig.	N	Predicted Relation	Actual Relation
H1	TOPMNGMT	0.475***	0.003	33	Positively Correlated	Consistent
H2	STRATEGY	0.510***	0.002	31	Positively Correlated	Consistent
H3	EVALUAT	0.137	0.257	25	Positively Correlated	None
H4	TRAINING	0.254*	0.092	29	Positively Correlated	Consistent
H5	OWNERSHP	0.418***	0.008	33	Positively Correlated	Consistent
H6	RESOURCE	0.254	0.140	20	Positively Correlated	None
H7	CLARITY	0.103	0.291	31	Positively Correlated	None
H8	TIMING	0.156	0.209	29	Positively Correlated	None
H9	CULTURE	0.261*	0.078	31	Positively Correlated	Consistent
H10	TEAM	0.105	0.305	26	Positively Correlated	None
H11	FEEDBACK	0.001	0.498	35	Positively Correlated	None

* Correlation is significant at the 0.10 level (1-tailed).
 ** Correlation is significant at the 0.05 level (1-tailed).
 *** Correlation is significant at the 0.01 level (1-tailed).

5.2.7 Testing Hypothesis 7:

Hypothesis 7 of this study was developed to test whether users’ and preparers’ perception of the ABC implementation success is positively correlated with their perception of the clarity of the objectives and the purposes and consensus about the objectives of ABC.

By using Pearson correlation, Table 11 sets the result of testing the correlation, and the significance of the correlation, of the dependant variable SUCEESS with the independent variable CLARITY. Table 11 does not confirm that there is a significant correlation ($r = 0.103$) within an accepted significant level between the two variables ($p > 0.10$).

Thus, the result presented in Table 11 is inconsistent with the study Hypothesis 7.

5.2.8 Testing Hypothesis 8:

Hypothesis 8 of this study was developed to test whether users and preparers perception of the ABC implementation success is positively correlated with their perception of the timing issues relative to initiating, implementing and using of ABC.

By using Pearson correlation, Table 11 sets the result of testing the correlation, and the significance of the correlation, of the dependant variable SUCEESS with the independent variable TIMING. Table 11 does not confirm that there is a significant correlation ($r = 0.156$) within accepted significant level between the two variables ($p > 0.10$).

Thus, the result presented in Table 11 is inconsistent with the study Hypothesis 8.

5.2.9 Testing Hypothesis 9:

Hypothesis 9 was developed to test whether users and preparers perception of the ABC implementation success is positively correlated with their perception of having the organizational culture within the University that allows the embracement of the ABC change.

By using Pearson correlation, Table 11 sets the result of testing the correlation of the dependant variable SUCEESS with the independent variable CULTURE. Table 13 shows also the significance of this correlation. Table 11 confirms that there is a

significant correlation ($r = 0.261$) between the two variables with an accepted significant level of 0.078 ($p < 0.10$).

The result presented in Table 11, therefore, is consistent with the study Hypothesis 9.

5.2.10 Testing Hypothesis 10:

Hypothesis 10 of this study was developed to test whether users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the appropriateness of the ABC project team.

By using Pearson correlation, Table 11 sets the result of testing the correlation, and the significance of the correlation, of the dependant variable SUCEESS with the independent variable TEAM. Table 11 shows that there is no significant correlation ($r = 0.105$) within an accepted significant level between the two variables ($p > 0.10$).

Thus, the result presented in Table 11 is not consistent with the study Hypothesis 10.

5.2.11 Testing Hypothesis 11:

Hypothesis 11 was developed to test whether users' and preparers' perception of the ABC implementation success is positively correlated with their perception of the ABC project on-going feedback.

By using Pearson correlation, Table 11 sets the result of testing the correlation of the dependant variable SUCEESS with the independent variable FEEDBACK. Table 11 tests also the significance of this correlation. Table 11 does not confirm that there is a significant correlation ($r = 0.001$) between the two variables within an accepted significant level ($p > 0.10$).

The result presented in Table 11, therefore, is not consistent with the study Hypothesis 11.

Pearson correlations of the dependent variable SUCCESS with the eleven independent variables showed consistence with predictions of the hypotheses: H1, H2, H4, H5, and H9. This, therefore, confirms the significant positive association between the dependant variable SUCCESS and each of the independent variables TOPMNGMT, STRATEGY, TRAINING, OWNERSHP and CULTURE.

5.2.12 Testing Hypothesis 12:

Hypothesis 12 was developed to test whether there is a positive correlation between users’ perceptions of the dependent variable and their perceptions of the eleven independent variables.

The hypothesis predicted that users’ perceptions of the eleven independent variables in concert will significantly explain their perception of the dependent variable.

To test this hypothesis multiple regression analysis was carried out. Tables 12, 13, 14 present the results of regressing the eleven independent variables against the likelihood of ABC success from a users’ perspective.

Table 12 Model Summary (users) ^{1, 2}

<u>Model</u>	<u>R</u>	<u>R Square</u>	<u>Adjusted R Square</u>	<u>Std. Error of the Estimate</u>
1	0.979	0.958	0.804	0.23976

1- Dependant variable: SUCCESS.
 2- Independent variables: TOPMNGMT, STRATEGY, EVALUAT, TRAINING, OWNERSHP, RESOURCE, CLARITY, TIMING, CULTURE, , FEEDBACK.

Table 13 ANOVA (users) ^{1, 2}

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.928	11	0.357	6.211	0.080
Residual	0.172	3	0.057		
Total	4.100	14			

1- Dependant variable: SUCCESS.

2- Independent variables: TOPMNGMT, STRATEGY, EVALUAT, TRAINING, OWNERSHP, RESOURCE, CLARITY, TIMING, CULTURE, FEEDBACK.

3- N = 15

Table 12 titled “Model Summary (users)” shows the dependant and independent variables of the study model. Based on the users’ perceptions of these variables, R (0.958) is the correlation of the eleven independent variables with the dependent variable after all the inter-correlations among the eleven independent variables and the dependent variable are taken into account. R Square (0.958) is the explained variance.

Table 13 the ANOVA table shows that the F value of 6.211 is significant at the 0.080 level ($p < 0.10$).

Results presented in Table 12 and Table 13 means that 95.8% of the variance in the users’ perceptions of the likelihood of ABC to succeed in ECU has been significantly explained by their perceptions of the eleven behavioural independent factors. The results, therefore, are consistent with the study’s Hypothesis 12.

Table 14, titled “Coefficients (users)”, helps to show, based on users’ perceptions, which among the eleven independent variables is the most significant in explaining the variance in SUCCESS. From the Beta figures in Table 16, three of the independent variables were significant. The first most explaining variable was STRATEGY (Beta = 0.808) at 0.045 significance level. The second was TOPMNGMT (Beta = 0.726) at

0.034 significance level. The third most important independent variable in explaining the variance in the dependent variable was (Beta = 0.725) at 0.066 significance level. These three variables were the only significant variables in explaining the variance of users' perceptions of SUCCESS dependent variable ($p < 0.10$).

Table 14 Coefficients (users) ¹

Model	Variable	Unstandardised		Standardized		Sig.
		<u>Coefficients</u>		<u>Coefficients</u>		
		B	Std. Error	Beta	t	
1	(Constant)	-3.565	1.696		-2.101	0.126
	TOPMNGMT	0.404	0.109	0.726	3.704	0.034
	STRATEGY	0.460	0.139	0.808	3.317	0.045
	EVALUAT	0.083	0.156	0.107	0.532	0.632
	TRAINING	-0.249	0.144	-0.373	-1.725	0.183
	OWNERSHP	-0.192	0.149	-0.396	-1.288	0.288
	RESOURCE	0.309	0.156	0.337	1.982	0.142
	CLARITY	0.097	0.114	0.221	0.849	0.458
	TIMING	-0.171	0.167	-0.224	-1.022	0.382
	CULTURE	0.296	0.168	0.601	1.765	0.176
	TEAM	0.784	0.278	0.725	2.825	0.066
	FEEDBACK	0.160	0.148	0.323	1.082	0.358

¹- Dependent variable: SUCCESS

5.2.13 Testing Hypothesis 13:

Hypothesis 13 was developed to test whether there is a positive correlation between preparers' perceptions of the dependent variable and their perceptions of the eleven independent variables.

The hypothesis predicted that preparers' perceptions of the eleven independent variables

in concert will significantly explain their perception of the dependent variable.

To test this hypothesis multiple regression analysis was carried out. Tables 15, 16, 17 present the results of regressing the eleven independent variables against the likelihood of ABC from a preparers’ perspective.

Table 15 titled “Model Summary (preparers)” shows the dependant and independent variables of the study model. Based on the preparers’ perceptions of these variables, R (0.630) is the correlation of the eleven independent variables with the dependent variable after all the inter-correlations among the eleven independent variables and the dependent variable are taken into account. R Square (0.397) is the explained variance of the dependent variable.

Table 15 Model Summary (preparers) ^{1,2}

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.630	0.397	-0.205	0.80495

- 1-

Dependant variable: SUCCESS.
- 2-

Independent variables: TOPMNGMT, STRATEGY, EVALUAT, TRAINING, OWNERSHP, RESOURCE, CLARITY, TIMING, CULTURE, FEEDBACK.
- 3-

N = 23.

Table 16 ANOVA (papers) shows that the F value of 0.659 is significant at the 0.750 level ($p > 0.10$).

Results presented in Table 15 and Table 16 means that 39.7% of the variance in the preparers’ perceptions of the likelihood of ABC to succeed in ECU has been explained by their perceptions of the eleven behavioural independent factors. The variance for

preparers' perceptions of the dependent variable shows to be non-significantly explained by the independent variables with the 0.75 significance level of F ($p > 0.10$). The results, therefore, are non-consistent with the study's Hypothesis 12.

Table 16 ANOVA (papers) ^{1, 2}

Model		Sum of Squares	df	Mean Square	F	Sig. .
1	Regression	4.699	11	0.427	0.659	0.750
	Residual	7.127	11	0.648		
	Total	11.826	22			

1- Dependant variable: SUCCESS.

2- Independent variables: TOPMNGMT, STRATEGY, EVALUAT, TRAINING, OWNERSHP, RESOURCE, CLARITY, TIMING, CULTURE, , FEEDBACK.

5.2.14 Testing Hypothesis 14:

Hypothesis 14 was proposed to test whether there is a difference between users and preparers in regard to their perceptions of the dependent variable and their perceptions of the eleven independent variables.

The study will use a t-test and Pearson correlation to test this hypothesis. The t-test will indicate if the differences between users and preparers, in their perceptions of the study variables, are significant. Pearson correlation will confirm the results of the t-test by indicating whether correlations between the participants' role and the study variables are significant.

It was clear from the descriptive statistics obtained for users' and preparers' perceptions of the dependent and independent variables (Table 17) that there was a tendency difference between preparers and users. While preparers had an agreeing tendency in general towards the study variable, users tended generally to be neutral about these variables.

To test the proposed Hypothesis 14, the t-test will examine the perceptions differences between preparers and users for each of the study variables to determine the significance of these tendency differences. A t-test will determine if the difference in perceptions between the users and the preparers groups is significant for each variable. The results of the t-tests are shown in Table 17 and Table 18. Table 17, Group Statistics, represents the descriptive statistics for each group. Table 18, Independent Sample Test, presents the results of the t-test done on the significance of the means differences between the users and preparers two participant groups on their perceptions of each of the dependant and independent variables.

As can be seen in Tables 17 and 18 the difference in the means of 3.3000 and 3.9130 with standard deviation of 0.67495 and 0.73318 between users and preparers on their perceptions of the dependant variable SUCCESS is significant. When equal variance is not assumed, then the 0.6130 means difference with a significance level of 0.031 is significant. The 0.013 significance level is clearly less than the accepted significance level of 0.05.

For the TOPMNGMT independent variable, the difference of the 3.3571 and 4.1739 means with 1.00821 and 0.57621 standard deviations for perceptions of the users and preparers groups on this variable is significant. The 0.8168 means difference on this variable, as equal variance is not assumed, has a significant level of 0.013. The significance level is much less than the accepted significance level of 0.05.

The means on the STRATEGY independent variable for the users and preparers groups were 3.3333 and 4.3478 with 1.07309 and 0.48698 standard deviations. The 1.0145 means difference between the two groups, as equal variance is not assumed, is significant because the 0.008 significance level of the mean difference is apparently less than the 0.01 significance level.

On the EVALUAT independent variable, means of the users and preparers perceptions were 2.1000 and 2.2941 with standard variations of 0.87560 and 0.98518. The means difference between the two groups was 0.1941 with a significance level of 0.601 (equal variances are not assumed). The significance level of the means difference is much

greater than the 0.10 accepted significance level. Thus, the means difference between the two participant groups is not significant for this variable.

The means on the two groups' perceptions of the TRAINING independent variable were 2.4615 and 3.5238 with 0.87706 and 0.92839 standard deviations. The means difference of the two groups' perceptions was 1.0623 with significance level of 0.002. Assuming variances are not equal, the 0.002 significance level is less than the accepted significance level of 0.01, which indicates that the means difference on the TRAINING variable, is significant.

The means on perceptions of the two groups on the OWNERSHP independent variable were 2.5714 and 3.5217 with 1.15787 and 1.08165 standard deviations. The means difference between the two groups was 0.9503. Assuming that variances are not equal, the means difference significance level is 0.020. The mean difference significance level is less than the accepted significance level (0.05), which indicates the significance of the means difference between the two participant groups on perceptions of the OWNERSHP independent variable.

Perceptions of the users and preparers groups of the RESOURCE independent had the means of 3.1429 and 3.2667 with the standard deviations of 0.89974 and 1.03280. The means difference between the two groups was 0.1238. Assuming that variances are not equal, the means difference significance level was 0.779, which is much greater than the accepted significant level of 0.10. This shows that the means difference between the users and preparers groups perceptions of the RESOURCE independent variable is not significant.

On the CLARITY independent variable, means on perceptions of the two participant groups were 2.6429, and 4.0909 with 1.27745 and 0.52636 standard deviations. The means difference between the two groups was 1.4481. The mean difference significant level, when variances are not equal, is 0.001. The means difference significance level is less than the accepted significance level of 0.01, which indicates that the means difference between the two groups on their perceptions of the independent variable CLARITY is significant.

Means of perceptions of the two groups on the independent variable TIMING were 2.3846 and 3.5238 and the standard deviations were 0.76795 and 0.98077. The means difference between the two groups was 1.1392. Assuming that variances are not equal, the significance level of the mean difference was 0.001. The mean here is less than the accepted significance level (0.01). Thus, the difference between the means on perceptions of the two participant groups is significant.

Means of users and preparers groups' perceptions of the independent variable CULTURE were 2.0833 and 3.3043 with 1.24011 and 1.10514 standard deviations. The means difference between the two groups was 1.2210. Assuming that variances are equal, the significance level of the means difference 0.005 is less than the accepted significance level (0.01). This indicates that the mean difference between the two participant groups on their perceptions of this variable is significant.

The means of the two groups on their perceptions of the TEAM independent variable were 3.7500 and 4.0000 with standard deviations of 0.70711 and 0.97014. The means difference between the two groups was 0.2500. Assuming variances are not equal, the significance level of the mean difference for this variable was 0.470. The significant level is much greater than accepted significant level ($p > 0.10$), which indicates that the means difference between the users and preparers groups on their perceptions of the TEAM independent variable was not significant.

And for the independent variable FEEDBACK, the means of perceptions of the two participant groups were 3.3077 and 3.5217 with standard deviations of 1.18213 and 0.99405. The means difference of perceptions of the two groups on this independent variable was 0.2140. Assuming variances are not equal, this means difference is not significant because the means difference significant level was 0.587, which is greater than accepted significant level ($p > 0.10$).

Table 17 Group Statistics

Variable	ROLE	N	Mean	Std. Deviation	Std. Error Mean
SUCCESS	user	10	3.3000	0.67495	0.21344
	Preparer	23	3.9130	0.73318	0.15288
TOPMNGMT	user	14	3.3571	1.00821	0.26945
	Preparer	23	4.1739	0.57621	0.12015
STRATEGY	user	12	3.3333	1.07309	0.30977
	Preparer	23	4.3478	0.48698	0.10154
EVALUAT	user	10	2.1000	0.87560	0.27689
	Preparer	17	2.2941	0.98518	0.23894
TRAINING	user	13	2.4615	0.87706	0.24325
	Preparer	21	3.5238	0.92839	0.20259
OWNERSHP	user	14	2.5714	1.15787	0.30945
	Preparer	23	3.5217	1.08165	0.22554
RESOURCE	user	7	3.1429	0.89974	0.34007
	Preparer	15	3.2667	1.03280	0.26667
CLARITY	user	14	2.6429	1.27745	0.34141
	Preparer	22	4.0909	0.52636	0.11222
TIMING	user	13	2.3846	0.76795	0.21299
	Preparer	21	3.5238	0.98077	0.21402
CULTURE	user	12	2.0833	1.24011	0.35799
	Preparer	23	3.3043	1.10514	0.23044
TEAM	user	8	3.7500	0.70711	0.25000
	Preparer	18	4.0000	0.97014	0.22866
FEEDBACK	user	13	3.3077	1.18213	0.32786
	Preparer	23	3.5217	0.99405	0.20727

According to the results of the t-test conducted, the tendency difference in the perceptions of most of the study variables between users and preparers is proved to be significant for most of the variables. The t-test results confirmed that preparer participant group is significantly different than users group in the general perception each group's members have of the dependant and independent variables except for EVALUAT, RESOURCE, TEAM and FEEDBACK, where users and preparers proved to have non significant differences in their general perceptions in regarding to these four independent variables.

To confirm the results of the t-test, Peterson Correlations between the role of participant and the study dependant and independent variables will determine the significance of each of these correlations. A significant correlation between any of the study variables and the role of participant indicates the significance of the role difference to that variable's perceptions' variations. In other words, the role correlation significance with any of the study variables indicates the significance of the difference between user's perceptions and preparers' perceptions of that variable.

Table 19 presents the correlations of the role of participant with the dependant and independent variables.

As can be seen in Table 19, within accepted significance level ($p < 0.01$) the Role shows to be significantly correlated with the independent variables TOPMNGMT, STRATEGY, TRAINING, OWNERSHP, CLARITY, TIMING, and CULTURE.

The role is also significantly correlated within accepted significant level ($p < 0.05$) with the dependent variable SUCCESS.

Only for the EVALUAT, RESOURCE, TEAM, and FEEDBACK correlation with participant role shows to be non-significant within any accepted level ($p > 0.10$).

Table 18 Independent Samples Test

Variable		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
SUCCESS	Equal variances assumed	0.532	0.471	-2.258	31	0.031	-0.6130	0.27150
	Equal variances not assumed			-2.335	18.601	0.031	-0.6130	0.26254
TOPMNGMT	Equal variances assumed	11.115	0.002	-3.147	35	0.003	-0.8168	0.25955
	Equal variances not assumed			-2.768	18.257	0.013	-0.8168	0.29503
STRATEGY	Equal variances assumed	7.787	0.009	-3.870	33	0.000	-1.0145	0.26215
	Equal variances not assumed			-3.112	13.414	0.008	-1.0145	0.32599
EVALUAT	Equal variances assumed	1.303	0.265	-0.514	25	0.612	-0.1941	0.37748
	Equal variances not assumed			-0.531	20.882	0.601	-0.1941	0.36573
TRAINING	Equal variances assumed	0.126	0.725	-3.310	32	0.002	-1.0623	0.32096

Table 18 (CONTINUE)

Variable		Levene's Test for Equality of Variances		t-tes for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	Equal variances not assumed			-3.356	26.710	0.002	-1.0623	0.31657
OWNERSHP	Equal variances assumed	0.363	0.551	-2.524	35	0.016	-0.9503	0.37646
	Equal variances not assumed			-2.482	26.124	0.020	-0.9503	0.38292
RESOURCE	Equal variances assumed	0.032	0.861	-0.272	20	0.788	-0.1238	0.45533
	Equal variances not assumed			-0.286	13.465	0.779	-0.1238	0.43215
CLARITY	Equal variances assumed	26.096	0.000	-4.750	34	0.000	-1.4481	0.30485
	Equal variances not assumed			-4.029	15.846	0.001	-1.4481	0.35938
TIMING	Equal variances assumed	0.712	0.405	-3.560	32	0.001	-1.1392	0.32003
	Equal variances not assumed			-3.773	30.072	0.001	-1.1392	0.30194
CULTURE	Equal variances assumed	0.000	0.993	-2.977	33	0.005	-1.2210	0.41020
	Equal variances not assumed			-2.868	20.265	0.009	-1.2210	0.42574

Table 18 (CONTINUE)

Variable		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
	Equal variances assumed	0.001	0.981	-0.653	24	0.520	-0.2500	0.38302
	Equal variances not assumed			-0.738	18.329	0.470	-0.2500	0.33880
FEEDBACK	Equal variances assumed	0.831	0.368	-0.580	34	0.566	-0.2140	0.36928
	Equal variances not assumed			-0.552	21.625	0.587	-0.2140	0.38789

Table 19 Pearson Correlation (Preparers and Users)
Correlations with Role of participant

Variable No.	Independent Variable	Correlation with Role	Sig.	N	Predicted Relation	Actual Relation
1	SUCCESS	0.376**	0.016	33	Sig. Correlated	Consistent
2	TOPMNGMT	0.470***	0.002	37	Sig. Correlated	Consistent
3	STRATEGY	0.559***	0.000	35	Sig. Correlated	Consistent
4	EVALUAT	0.102	0.306	27	Sig. Correlated	None
5	TRAINING	0.505***	0.001	34	Sig. Correlated	Consistent
6	OWNERSHP	0.392***	0.008	37	Sig. Correlated	Consistent
7	RESOURCE	0.061	0.394	22	Sig. Correlated	None
8	CLARITY	0.632***	0.000	36	Sig. Correlated	Consistent
9	TIMING	0.533***	0.001	34	Sig. Correlated	None
10	CULTURE	0.460***	0.003	35	Sig. Correlated	Consistent
11	TEAM	0.132	0.260	26	Sig. Correlated	None
12	FEEDBACK	0.099	0.283	36	Sig. Correlated	None

* Correlation is significant at the 0.10 level (1-tailed).

** Correlation is significant at the 0.05 level (1-tailed).

*** Correlation is significant at the 0.01 level (1-tailed).

Pearson correlations confirm the t-test result of the mean differences for all of the study variables. Pearson correlations, as well as the t-test conducted, indicate that there were differences between users and preparers in their perceptions of the study variables. Results therefore are consistent with Hypothesis 14.

Therefore, the test results provided support for relationships predicted by Shields (1995)

and McGowan and Klammer (1997) as well as predictions of this study. Seven hypotheses of the fourteen hypotheses of this study were supported. As predicted in H1, H2, H4, H5 and H9 the results indicate the existence of positive relationships between the perceptions of users and preparers participants of the independent variable SUCCESS and their perceptions of TOPMNGMT, STRATEGY, TRAINING, OWNERSHP and CULTURE. The results were also consistent with the prediction of H12 and H14. The study confirmed that the theoretical framework adopted by the study explains significantly the perceptions of the user participants' perceptions of the independent variable SUCCESS; and the existence of differences between users and preparers in their perceptions of the study variables was also confirmed.

The results did not provide support for the predictions of the study's hypotheses H3, H6, H7, H8, H10, H11 and H13. Positive relations were not proved to be significant between users' and preparers' perceptions of the dependent variable SUCCESS and their perceptions of the EVALUAT, RESOURCE, CLARITY, TIMING, TEAM and FEEDBACK. The theoretical frame work between the study's dependant and independent variables fails to explain significantly preparers' perceptions of the likelihood of ABC to succeed in the University.

This chapter has provided an analysis of the data collected from the 38 sample participants of preparers and users of the ABC implementation project at Edith Cowan University. The analysis has included descriptive statistics of the data collected as well as a hypotheses testing of the study's fourteen predictions.

CHAPTER 6: CONCLUSIONS, LIMITATIONS, AND SUGGESTIONS FOR FURTHER STUDY

6.0 Summary and conclusions

This exploratory study has provided empirical evidence concerning a university experience with ABC by testing fourteen predictions based on a theoretical model similar to the theoretical models developed by Shields (1995) and McGowan and Klammer (1997).

The study has analyzed generally perceptions of the sample users and preparer of ABC implementation project at ECU. The study has also individually analyzed perceptions of each of the two participant groups, the users and the preparers. The study analyzed participants perception of the likelihood of ABC to succeed in a university setting as well as their perceptions of eleven behavioral factors predicted to have significant positive effects on the ABC implementation success.

This study's results indicate that on average, the sample 38 user and preparer participants reported a moderately agreeing tendency towards the likelihood of ABC implementation to succeed in the University. Considering each participant group individually, preparer participants on average reported an agreeing tendency towards the likelihood of the ABC implementation project to succeed, while users on average reported a neutral tendency towards the success likelihood in ECU.

Consistent with the study's predictions and consistent with previous studies' predictions (Shields, 1995; Shields and McEwen, 1996; Roberts and Silvester, 1996; Krumweide, 1997; McGowan and Klammer, 1997; Krumweide, 1998; Sohal and Chung, 1998; Norris, 2002), the study results confirmed in a university setting that users and preparers of ABC perceive the likelihood of ABC to succeed as associated with top management

involvement and support to the ABC project. Top management are in the control of the ultimate power and the required resources in the organization. For this reason, top management understanding, involvement and support to the ABC implementation in all of its stages is a considerable determinant of the system implementation success.

Consistent with this study's predictions and consistent with predictions of previous studies (Shields, 1995; Thorne and Guard, 1995; Shields and McEwen, 1996; Young, 1997; Anderson *et al.*, 2002) and in a university setting, the study provided evidence that linkage to competitive strategies and continuous improvement programs is associated with the likelihood of ABC success. This could be attributed to the fact that members of the organization who will prepare and use the ABC system are disciplined to the organization strategies to compete and improve. Thus, the linkage of the ABC system to competitive strategies and continuous improvement programs affects positively the organization members' attitudes towards the system.

Consistent with the study's predictions and with predictions of previous studies (Shields, 1995; Shanahan, 1995; Thorne and Gurd, 1995; Shields and McEwen, 1996; Young, 1997; McGowan and Klammer, 1997; Sohal and Chung, 1998; Krumweide, 1998; Anderson *et al.*, 2002), the study provided evidence in a university setting that training provided to employees at all levels concerning designing, implementing and using the ABC system is another important success factor to the ABC implementation. Training could help the employees to understand the complexity of the system as well as the impact of the system on the organization.

Consistent with the study's predictions as well as predictions of previous studies (Shields, 1995; Shields and McEwen, 1996; Krumweide, 1998), the study's results proved in a university setting that ownership by non-accountants is significantly associated with ABC success. This could indicate that taking ABC "ownership" by non-accountants as well as by accountants creates the belief by the employees that ABC is of a practical use to all employees in all departments of the organization and not just to the employees in the finance department. Thus, for all employees to be more cooperative and positive towards the system, employees at all departments must perceive the system as of practical use to them regardless to which department they belong.

Consistent with the study prediction and consistent with previous studies (Thorne and Gurd, 1995; Shanahan, 1995; Roberts and Silvester, 1996; Young, 1997), the study provided evidence in a university setting that it is important for the implementation of ABC, which is a major change in the organization, to have the organizational culture within the implementing organization that allows the embracement of such change.

The study results did not indicate significant associations between the likelihood of activity based costing to succeed and behavioural implementation factors presented by the other study independent variables. The study failed to provide evidence in a university setting that ABC implementation success is significantly associated with the linkage of the ABC project with the University's evaluation and compensation plan, the adequacy of resources provided to the implementation project, the relative timing issues, the appropriateness of the project team and the feedback on the progress of the project.

The results were inconsistent with the study predictions and previous studies (Shields, 1995; Shanahan, 1995; Thorne and Gurd, 1995; Shields and McEwen, 1996; Roberts and Silvester, 1996; Young, 1997; McGowan and Klammer, 1997) with regard to linkage of the ABC system to the organization's performance evaluation and compensation plan. The results showed no significant association between this behavioural factor and the likelihood of the ABC implementation to succeed. The low participation rate of user and preparer participants of the study who rated their perceptions of this variable (N = 27, Table 17) could undermine the reliability of this result. The percentage of 28.9% of users and preparers participants of the study have rated their perception of the linkage to performance evaluation and compensation variable as "Do not Know" (Table 2).

The results were inconsistent with the study predictions and previous studies (Shields, 1995; Shields and McEwen, 1996; Sohal and Chung, 1998; Krumwiede, 1998) with regard to the association of the adequacy of the amounts of resources provided for the ABC implementation relative to the actual amount needed by it with the likelihood of the ABC project to succeed. The study did not indicate a significant association of the likelihood of ABC success and this behavioural factor. The low participation rate of user and preparer participants of the study who rated their perception of this variable (N

= 22, Table 17) could negatively affect the reliability of this result. A percentage of 42.1% of participants rated have their perceptions of this variable as "Do not know" (Table 2).

The study's results showed no significant association between the clarity of, and, consensus on the ABC project objectives with the likelihood of the project to succeed. The results were inconsistent with the study predictions and previous studies (Shanahan, 1995; Thorne and Gurd, 1995; Shields and McEwen, 1996; Roberts and Silvester, 1996; Young, 1997; Sohal and Chung, 1998) with regard to the association of consensus and clarity of the ABC objectives with the ABC likelihood to succeed. This result was also inconsistent with results of McGowan and Klammer (1997) study only in regarding to the clarity of the project objective while this result was consistent with this previous study in regarding to consensus on the project's objectives. McGowan and Klammer (1997) study supported the predictions of positive relationship between satisfaction with ABC implementation and the degree to which objectives are clearly stated. McGowan and Klammer (1997) results did not support the positive association relationship between individuals' satisfaction with ABC implementation and the degree to which objectives are shared.

The result were inconsistent with the study predictions and previous studies (Thorne and Gurd, 1995; Roberts and Silvester, 1996; Young, 1997) with regard to the association of ABC implementation's timing issues with the likelihood of the ABC project to be successfully implemented. The results indicated no significant association between this behavioural factor and the likelihood of the ABC project success.

The results were inconsistent with the study predictions and previous studies (Thorne and Gurd, 1995; Sohal and Chung, 1998; Anderson *et al.*, 2002) with regard to the association of the ABC likelihood to succeed and the appropriateness of the ABC project implementation team. The results showed no significant association between this behavioural factor and the likelihood of ABC success. The low participation rate of user and preparer participants of the study who rated their perception of this variable (N = 26, Table 17) could negatively affect the reliability of this result. A percentage of 31.6% of the study's participants have rated their perceptions of the questionnaire statement related to this variable as "Do not know" (Table 2).

The result were inconsistent with the study predictions and previous studies (Thorne and Gurd, 1995; Sohal and Chung, 1998) with regard to the association of the likelihood of ABC to succeed with an on going feedback on the implementation project directed to all levels of the organizations from the top management to the lower levels employees. The study indicated no significant association between this behavioural factor and the likelihood of ABC to succeed.

Based on the theoretical framework, the study examined, for each of the user and preparer participants groups separately, the significance of all the independent variables working in concert in explaining the likelihood of ABC implementation to succeed in a university setting.

From a users' perspective, the study provided evidence that the studied eleven behavioral factors could explain significantly the likelihood of ABC to succeed in a university setting. This could indicate that users perceive the availability of the study variables as sufficient to achieve ABC implementation success in a university setting.

From a preparers' perspective, the study provided evidence that the studied behavioral factors on their own do not explain significantly the likelihood of ABC to succeed in a university setting. This could indicate that preparers perceive the availability of the study variables as insufficient to lead to an ABC implementation success in a university setting¹.

The study also tested the existence of differences between the user and preparer two participant groups in their perceptions of the study variables. The results proved that the two groups differentiate significantly in perceptions of each group of all of the study variables except for the EVALUAT, RESOURCE, TEAM, and FEEDBCK independent variables. The low participation rate of the study participants in rating their perception

¹ A further regression was conducted on the preparers' data by deleting the independent variables that have no sufficient number of responses. This did not change the over all result with regard to preparers. A further regression on the preparers' data was also conducted by excluding variables that are of the least correlation significant with the dependent variable in an attempt to test the possibility that some and not all of the independent variable can explain the preparers' perceptions of SUCCESS. This attempt did not also change the overall result. It should be noted that the power of the test was significantly reduced by the small sample size and the relatively large number of independent variables.

of the EVALUAT, RESOURCE, and TEAM independent variables could underlie the results showing the non existence of significant differences between users and preparers in their perceptions of these three variables.

The low participation rate of preparer and users in relation to EVALUAT (N = 27), RESOURCE (N = 22), and TEAM (N = 26) independent variables could indicate either lack of knowledge among preparer and users of issues related to these behavioural factors, or lack of participants understanding of the study questionnaire's statements related to these variables, or both.

Therefore, the empirical evidence presented by this paper supported seven of the fourteen predictions. Five of the seven supported predictions were concerning the significant positive correlations between users' and preparers' perceptions of the likelihood of ABC to succeed in a university setting and their perceptions of five of the study independent variables individually. Another supported prediction was the significance of users' perceptions of the independent variables working together in explaining their perceptions the likelihood of ABC to succeed in a university setting. The last supported prediction was concerning the existence of differences between users and preparers in their perceptions of the dependent and independent variables.

6.1 Limitations

Like all empirical studies, this research suffers from several limitations that should be considered in interpreting the results.

Like McGowan and Klammer (1997) a single-item scale was used to measure the dependent variable. This single scale was used to rate participants' perceptions of the likelihood of ABC to succeed in the University. The single scale is very rough and cannot capture all aspects of the dependent variable. Further, like Shields (1995) this crude single measurement of success did not specify the definition of success. The study asked participants to rate their perceptions of the likelihood of ABC to succeed without

providing a specific identification that captures all aspects of this multidimensional concept.

Like Shields (1995) and McGowan and Klammer (1997) the study is based on perceptions of users and preparers of the ABC system. It is assumed that participants intended to convey, via reporting their perceptions, information concerning the likelihood of ABC to succeed in the university as well as the availability of the studied behavioral independent variables. Perceptions of participants could be influenced by individual opinions and personal influences such as each participant's reaction to the ABC system.

In regarding to the study sample, the study's results were based on a relatively small sample from one university. Therefore care should be taken in generalizing the study results. McGowan and Klammer (1997) argue that small sample size prevents the examination of contingency relationships among the variables. Further, the low participation rate results from the inability of some participants in rating some of the independent variables could undermine the results related to these variables.

6.2 Suggestions for further study

This research has extended previous studies by the integration in one study of all ABC behavioral implementation variables proved in previous studies to have an effect on the ABC success and retesting all these variables effects on ABC success in a university setting. The study also was the first to examine the differences between the ABC users group and the ABC preparers group in their perceptions of the study's variables, as well as examining the extent to which the integrated studied behavioral factors can explain the ABC success from each group's perspective. Further research would be useful to verify and to extend the results of this research study.

The power of the test was significantly reduced by the small sample size and the relatively large number of high correlated independent variables. Further research might overcome that by the selection of a larger sample size with the selection of independent

variables that have lower correlations between them. A larger sample size with lower correlated independent variables might allow taking future study further to test, for instance, possible linkage between the independent variables, i.e. some variables would be intervening or moderating variables.

The behavioral variables tested in this study were insignificant to explain the preparers' view of success. Future research might extend the theoretical model of this study to identify and test more variables and/or to provide more specification of variables so as to provide a preparers' significant explanation of ABC success. Better measures and more specification of key variables could also improve the participation rate of participants in rating the study variables so as to increase the results' reliability.

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Appendix A The Research Information letter and the Questionnaire

The Information letter

10 March 2004

Dear Sir/ Madam,

Perceived Likelihood of Activity-Based Costing Implementation to Succeed in a University Setting

I am conducting research study into the use of Activity-based Costing as part of my Master of Business by Research (Accounting) at Edith Cowan University. The study aims to highlight the importance of certain implementation characteristics of the Activity-based costing system by testing the association of these characteristics with the perceived likelihood of the system implementation to succeed. The study is also expected to advance and contribute to the developed theory supporting the association of ABC system certain characteristics factors and the system implementation success. As you are a preparer or user of Activity-based Costing reports in Edith Cowan University, I am extremely interested in your opinion on this matter.

The stages of the research study have included a literature review that has identified critical variables to the implementation of Activity-based Costing. The other stages will include obtaining responses from participants involved in preparing and/or using of Activity-based Costing in Edith Cowan University, the analysis of the aggregate responses (individuals will not be identified in the analysis), and the discussion of the results.

Enclosed is a questionnaire that will enable you to anonymously share your opinion with respect to Activity-based Costing. The information provided by your response and that of others will be aggregated for analysis. The analysis will be used to identify significant variables in the implementation of Activity-based Costing. You will not be identified in the analysis or the written report of this research study. I would be extremely grateful if you would take the time to respond to the questionnaire, as my study cannot be performed without the collection of your valuable opinion. I expect that it take approximately 15 minutes to complete the questionnaire.

I realize that you are likely to be heavily committed to other activities and therefore I have set a date for the return of your response in two weeks.

On completion of the study, I would be very pleased to send out a summary of the results that you will have contributed to. Participants will not be identified in the published research reports. If you have any queries about the questionnaire please

contact either my research supervisor Associate Professor Colin Dolley at Edith Cowan University on (08) 6304 5357, or myself on [REDACTED]

If you have any concerns or complaints about the research project and wish to talk to an independent person, you may contact:

Research Ethics Officer

Human Research Ethics Officer

Edith Cowan University

100 Joondalup Drive

JOONDALUP WA 6027

Phone: (08) 6304 2170

Email: research.ethics@ecu.edu.au

I look forward to receiving your completed questionnaire.

Thank you from:

Nazmi Saeb Jarrar
Master In Business by Research – Student
Edith Cowan University



A/P Colin Dolley (Supervisor)
Faculty of Business & Public
Management
Edith Cowan University
100 Joondalup Dve
Joondalup 6027
Tel. (08) 6304 5357
E-mail c.dolley@ecu.edu.au

The Questionnaire

Activity-based Costing Questionnaire – Preparers/Users

Purpose:

The purpose of this research is to investigate the use of Activity-Based Costing of Edith Cowan University. Your opinions are critical to the success of this study.

Instructions:

This is an anonymous questionnaire. Please ensure that you do not write your name, or any other comments that will make you identifiable on the questionnaire. By completing the questionnaire you are consenting to take part in this research. As such you should first read the enclosed Participant Information Letter carefully as it explains fully the intention of the research project.

Please answer the following 12 questions. Please circle the number in the following five points scale that best describes your opinion about Activity-based Costing in Edith Cowan University.

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know Disagree Agree

Question 1

The Activity-Based Costing project is likely to succeed in ECU.

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Question 2

Top management demonstrate their own commitment and support to the ABC implementation project.

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Question 3

The ABC initiative is linked to the university's competitive strategy and continuous improvement and quality initiatives.

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Question 4

There is a strong linkage between the performance evaluation systems and the university's compensation plan and the ABC system.

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Question 5

People in this university are receiving proper training and orientation concerning designing / implementing and using ABC.

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Question 6

The ownership of the ABC project is by all the university departments and not only by the university finance department.

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Question 7

The amounts of resources provided for ABC relative to the amounts of resources needed are adequate.

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Question 8

Objectives of the ABC implementation process were clearly stated up front and there is consensus about these objectives

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Question 9

Proper consideration has been paid to timing issues related to initiating, implementing, and using the system in the university.

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Question 10

The University has the organizational culture that helps ABC implementation to succeed.

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Question 11

The University has employed the proper ABC project .

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Question 12

There is an on going feedback of information on the progress of the ABC implementation project and on the results of the project directed to all levels in the university (i.e. top management and lower levels employees).

0-----1-----2-----3-----4-----5
Don't Strongly Disagree Neutral Agree Strongly
Know disagree Agree

Please return the questionnaire in the stamped envelope provided addressed to the researchers and the card separately. (This will enable the researchers to send out a

summery of the results to all those who responded whilst maintaining participant anonymity).

End of Questionnaire

Thank you for your participation in the project

The Reminding letter

23 June 2004

Dear Sir/ Madam,

This is my second letter to you in regard to the research study I am conducting into the use of Activity-based Costing as part of my Master of Business by Research (Accounting) at Edith Cowan University.

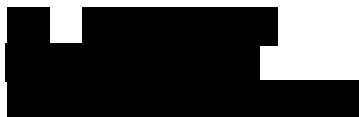
I fully understand the heavy commitments you have to other activities, especially this time of the year. But, as my study cannot be performed without the collection of your valuable opinion, I would be extremely grateful if you would take the time to respond to the study questionnaire.

My first letter, dated on the 7th of June 2004, could be misplaced or, because of any other reason, might not have found its way to you. So, I have enclosed with this letter another copy of the study questionnaire and information letter that will enable you to anonymously share your opinion with respect to Activity-based Costing in ECU.

Please disregard this letter if you have already received my first letter and sent back your opinion.

Best Regards,

Nazmi Sae'b Jarrar
Master in Business by Research – Student
Faculty of Business & Public Management
Edith Cowan University
Joondalup 6027



Appendix B Questionnaires used in previous studies

1- McGowan and Klammer (1997):

Variable Measurement

Dependent Variable

Using the following five-point scale, indicate your degree of satisfaction with the implementation of ABCM at your site.

1-----2-----3-----4-----5
Strongly Strongly
Unfavourable Favorable

Independent Variables

- 1- Leaders (top management) demonstrate their own commitment to the ABCM implementation project.
- 2- I was highly involved in the implementation of ABCM.
- 3- Objectives of the implementation process were clearly stated up front.
- 4- Objectives of the implementation are shared by all in this organization.
- 5- There is a strong linkage between the performance evaluation systems and the ABCM system.
- 6- People in this organization are receiving proper training and orientation.
- 7- The training resources for the ABCM implementation are adequate.
- 8- The quality of the information produced by the ABCM system is:

1-----2-----3-----4-----5
Very Low Average High Very
Low High

Questions 1-7 (five-point scale):

(1) strongly disagree; (2) disagree; (3) neutral; (4) agree; and (5) strongly agree.

2- Shields (1995)

Independent Variables

1. The degree to which the ABC initiative has the support of top management.
- 1- When the ABC initiative began, the extent to which the objective was clear and concise.
- 2- When the ABC initiative began, the extent of consensus about the ABC objective.
- 3- The degree to which ABC is linked to competitive strategy.
- 4- The degree of linkage of the ABC initiative to quality initiatives.
- 5- The degree of linkage of the ABC initiative to JIT and other speed initiatives.
- 6- The amount of training provided to employees concerning designing ABC.
- 7- The amount of training provided to employees concerning implementing ABC.
- 8- The amount of training provided to employees concerning using ABC.
- 9- The extent to which “canned” ABC software was used.
- 10- The extent to which customized ABC software was used.
- 11- The amount of assistance received from external consultants.
- 12- The degree of ABC “ownership” by the accounting department.
- 13- The degree of ABC “ownership” by various operating departments (e.g., marketing, engineering, manufacturing).
- 14- The extent to which ABC is separate and not integrated with other accounting systems.
- 15- The degree of linkage of ABC to performance evaluation and compensation.
- 16- The amounts of resources provided for ABC initiatives relative to the amounts of resources needed for them.

Figure 1 The Theoretical Model

Hypothesis No. Independent Variables

Dependant Variable

